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INTERNATIONAL RAILWAY CONGRESS
ASSOCIATION
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TWELFTH SESSION

Cairo, 19-30 January, 1933.

GENERAL PROCEEDINGS

4th Section : **GENERAL.**

INAUGURAL MEETING

20 January, 1933 (morning).

PROVISIONAL CHAIRMAN : SIR EVELYN CECIL,
MEMBER OF THE PERMANENT COMMISSION OF THE ASSOCIATION.

— The Meeting was opened at 9 o'clock.

The Chairman. — Gentlemen, I have been requested by the Permanent Commission to instal the 4th Section and make up its Bureau. I shall begin by welcoming the Delegates and wishing that their work may be very successful. It is our task to examine two very interesting questions, in particular that dealing with rail and road competition, and I am sure your discussions will mean a further step

towards an equitable solution of this much debated problem.

On behalf of the Permanent Commission, I wish to propose, as President of the 4th Section, H.E. Mahmoud Chaker Bey, Under Secretary of State at the Egyptian Ministry of Communications, who is an eminent man in the railway world and will doubtless preside over your discussions with the same ability he has shown throughout his career. (*Applause.*)

I also propose, on behalf of the Per-

manent Commission, as Principal Secretary, Mr. A. ALLARD, Manager of the Belgian National Light Railways Company. (*Applause.*)

— H. E. Mahmoud Chaker Bey and Mr. Allard then took their seats.

The President. — Gentlemen, I heartily thank you for the honour you have done me in designating me to preside over the 4th Section. The presence of such eminent railway leaders is a sure guarantee that the important and very interesting questions which we will discuss in our meetings will be examined very carefully and that our final decisions will improve the welfare of the railways and the railwaymen. (*Applause.*)

We will now proceed to the appointment of the Vice-Presidents. I wish to

propose the following Gentlemen for these functions :

Messrs. H. B. BOVEE, European Freight Agent, Pennsylvania Railroad Company.

A. WASIUTYNSKI, Vice-Président du Conseil technique au Ministère des Communications (Poland).

A. A. LISBOA DE LIMA, Sous-Directeur général au Ministère des Colonies (Portugal).

HENNING, Inspecteur en chef adjoint au Directeur de l'Exploitation, Société Nationale des Chemins de fer belges (Belgium).

— The Section then completed its Bureau and drew up a provisional Agenda.

— The Meeting was closed at 9.30.

QUESTION X.

Instances of the application in a railway department of the scientific organisation of work. Co-operation of the staff towards increased efficiency and its participation in the profits.

Preliminary documents.

1st report (Belgium, Spain, France and their Colonies, Great Britain, Dominions and Colonies, Luxemburg, Holland, Portugal and their Colonies), by Messrs. E. SOULEZ and M. BLOCH (See *Bulletin*, July 1932, p. 1329, or separate issue No. 21.)

2nd report (All countries except Spain, Portugal, France, Great Britain, Dominions and Colonies, Belgium, Luxemburg, Holland, Denmark, Norway, Sweden, Finland, Germany, Switzerland, Czechoslovakia, Bulgaria, Greece, Rumania, Jugo-

slavia, Turkey and Poland), by Messrs. L. TOSTI and C. VALERI. (See *Bulletin*, July 1932, p. 1241, or separate issue No. 18.)

3rd report (Denmark, Norway, Sweden, Finland, Germany, Switzerland, Czechoslovakia, Bulgaria, Greece, Rumania, Jugoslavia, Turkey and Poland), by Messrs. MEREUTZA and PANAITOPOL. (See *Bulletin*, October 1932, p. 1923, or separate issue No. 32.)

Special Reporters : Messrs. E. SOULEZ and M. BLOCH. (See *Bulletin*, January 1933, p. 132.)

DISCUSSION BY THE SECTION.

Meeting held on the 23 January, 1933.

PRESIDENT : H. E. MAHMOUD CHAKER BEY.

— The Meeting is opened at 9.30 a. m.

The President. — Gentlemen, we will now deal with the first question on the agenda of the 4th Section, that is to say with Question X.

The first speaker is Mr. SOULEZ, who, in collaboration with Mr. BLOCH, drew up the special report summing up the different reports presented.

Mr. Soulez, *Special Reporter*. — Mr. President, Gentlemen, as you know Question X, which this Meeting now has to discuss, was included in the agenda by the Permanent Commission to meet the wish expressed, at the Madrid Congress, that the scope of Question XV then under discussion and worded as follows : « Co-operation of the staff towards increased efficiency and its participation in the

profits » should be widened. In addition the Permanent Commission was then much preoccupied by the capital importance of the scientific organisation of work on the railways. Three reporters were consequently chosen to make a thorough study of this double question as regards Railway Administrations belonging to the Association. The three reporters sensibly adopted the same questionnaire, and drew up the reports on the question in the same way, and we can say that their summaries very closely agreed with one another.

I should like, first of all, to say that, imitating in this respect the reporters, Mr. Bloch and myself did not consider it necessary to give a complete list of all the cases of scientifically organised work which were quoted to us. On the contrary, we have only selected the most typical cases.

Questionnaires were sent to all the Administrations belonging to the Association, and approximately one third of them replied to the questions set. Obviously it would have been better and more satisfactory had we received a greater number of replies; nonetheless the number of replies was already considerable and the data collected from them is sufficiently complete to give rise to a discussion likely to produce good results.

I do not propose to read to you again the special report drawn up by Mr. Bloch and myself, but I would like to call your attention to the points which we thought the Meeting would find of particular interest.

First of all, I would like to insist on the capital importance of the organisation of work. This is becoming more important because of the cruel competition the railways have to fight at the present time. Our colleagues, Messrs. Tosti and

Valeri, have even said, and we think very truly, in their summaries, that it is precisely during periods of depression, at times when things are most difficult for the railways, that good organisation is the most necessary.

A conclusion, or at least an observation which obviously imposes itself is that all scientific organisation can only give good results on the condition that it is based on the co-ordination of all the different methods of transport, otherwise the isolated efforts made by the railways will be useless. We have no hesitation in going as far as to say that this co-ordination should extend so as to cover, not only production, i. e. the application of all possible means of reducing the cost price, but also an increase of consumption, and consequently it should cover the search for and the creation of traffic.

A second remark which applies equally well to a system, a department, or a workshop, is that too great an organisation may have serious drawbacks from the point of view of the best efficiency. There may be a temptation to set up extremely important organisations on a very large scale, as these have the obvious advantage of decreasing the overhead costs, but as soon as the working of such an organisation cannot be followed up efficaciously, leakages occur which can result in much greater losses than any savings in the general charge. On the other hand, when the departments are closely knit together, we get on the contrary a co-ordination of efforts which makes it possible to get a better output with the minimum of staff.

Finally, in industry in general, the industrialist is free to set up his shops where he chooses. The railways, on the contrary, cannot do this, because they are bound by the requirements of the traffic which compel them to locate their estab-

lishments according to the configuration of the system.

But when the railways can within certain limits chose their sites and their method of working, they should do so by grouping the work in a minimum number of shops, equipped to the maximum extent, so as to obtain the best output for the work to be done, and this applies in particular to the shunting yards, the marshalling yards and the large depots. In these cases the railways have, on the contrary, every advantage in being equipped to the maximum degree so as to lower the unit cost price. However, we must not lose sight of the fact that if the railways use equipment of increased power, it is necessary to obtain the maximum output from such equipment, as any reduction in the output from an important tool may cause a more appreciable loss.

Finally, standardisation of the parts has also been investigated by the railways so as to avoid an exaggerated increase in the stores held, and, on the other hand, to decrease the cost of repairs as well as the time the stock to be repaired is out of service.

We have spoken so far about all the methods applicable to the stock, which can increase the output. But this is only one

side of the question. The human element also plays an important part in the efficiency of the undertaking. This is where all the measures intended to keep the staff attached to the common work come in.

From this point of view, I should like to make a little digression and call the attention of the Section to the fact that a small printer's error has occurred on page 152 in the second column, just before the last paragraph, of the special report (French text), where it says that the railways should have a devoted staff attached to the proper and even the perfect carrying out of the service... It should be « *doivent* » and not « *devraient* ». (*The English text remains unaltered.*)

Finally the railways have already made and will continue to make the maximum efforts to attach their staff to them, that is to say the maximum compatible with the present difficulties.

Gentlemen, these are, I think, the most important points of our special report. A certain number of ideas were retained as the summaries of this report. They can, if you like, serve as a basis for the discussions of this Section. (*Applause.*)

(H. E. MAHMOUD CHAKER BEY gave up the presidency to Mr. HENNING, Vice-President.)

PRESIDENCY OF Mr. HENNING, VICE-PRESIDENT.

The President (in French). — Gentlemen, I apologise for taking the chair so unexpectedly, and I entreat your goodwill. First of all, I will make myself your interpreter and thank Mr. Soulez for the excellent report he has given us. He has summed up in a few words the results of a particularly vast investigation.

Before we begin to examine the different summaries of the special report, I

want to know if any of you wish to speak about the question as a whole.

(*No remarks were made.*)

We will therefore, Gentlemen, pass on to a successive examination of the different summaries suggested by the Special Reporters. These summaries are preceded by a brief introduction which I will read you, as well as *Summary 1* :

Having analysed into what we think are

their essential elements, the three reports which we had to examine, we have now to extract the broad principle for submission to the Congress. It should be observed that the conclusions of these three reports, if not analogous, are at least very akin on the whole. The special reporters submit to the 1933 Congress the following recommendations which are likewise based on the same views :

1. At the base of rail transport organisation is the general organisation of all means of transport, but to enable each to cater for its own traffic, the legal and fiscal obligations should be the same for all carriers.

This condition being fulfilled, the harmonious co-ordination desired must be sought from the outside by effecting all possible connections between rail and other means of transport (road motors, mechanised inland water transport, aeroplanes) and also be pursued internally in each service, system and group of systems, in order to increase efficiency. It should be noted, however, that amalgamation, to which in certain cases co-ordination may lead, is limited, both as regards management and actual operation, by various circumstances.

Does anyone wish to say anything about this summary ?

Mr. Vandersypen, Belgian National Railways Co. (in French). — I think that it is very important to endeavour to get increased efficiency in each service, railway, and group of railways; I think that this is even more important than endeavouring to join forces with other methods of transport. My opinion, therefore, is that the inside organisation of the railways is what matters most.

The President (in French). — Mr. Vandersypen thus attaches the greater importance to the inside organisation of the railways. But the text of the Special Reporters takes this point of view into account. It says :

This condition being fulfilled, the har-

monious co-ordination desired must be sought for from the outside by effecting all possible connections between rail and other means of transport (road motors, mechanised inland water transport, aeroplanes) and also be pursued internally in each service, system and group of systems, in order to increase efficiency...

Mr. Vandersypen (in French). — Perhaps it would be as well to indicate the second point before the first.

Mr. Soulez (in French). — In drawing up our text we have been as general as we could be. This is the only justification of the wording we adopted.

The President (in French). — If Mr. Vandersypen agrees, we will only mention his point in the minutes of the meeting.

Mr. Vandersypen. — I agree.

— *Summary 1 is adopted without any other objections.*

The President. — We will now go on to *Summary 2* :

The results which it is hoped to achieve from organisation not being entirely dependent upon the railways themselves, it is necessary, if the efforts made are to have really satisfactory results, that the administrative obligations to which the railways are subjected and the regulations by which they are governed should be properly adapted to the existing economic conditions and the increased technical possibilities of new appliances.

— *Adopted.*

We will pass on to *Summary 3* :

The aim of modern organisation, as we conceive it, should be to carry out all mechanical work by machinery, leaving to the

human being those tasks which require initiative and discernment.

Such organisation increases the safety of the employees, both by the abolition of certain work involving special risk, and by the introduction of devices which safeguard the operatives against the consequences of human fallibility.

Finally, the organisation of work together with the award of output premiums or shares in the general profits of the enterprise makes it possible to assure an increased remuneration to the staff.

— *This point is adopted without objections.*

We will pass on to *Summary 4* :

The duties of controlling offices must be clearly defined and be simplified as much as possible, with a maximum of direct contact between each other and between them and the services under their direction so as to expedite to the utmost all matters dealt with.

A means of ensuring inter-service contact which, we think, can be recommended, is the holding of periodical meetings between officials responsible each of part of a common task.

— *Adopted.*

Summary 5 is worded as follows :

The operative services should be enabled to collaborate in the endeavour to discover more economical and reliable methods. In view of the satisfactory results already obtained in this connection, it would be desirable to extend standardisation of stock as far as possible, reducing the number of types and standardising parts and the tolerances allowed therefor.

The various workshops and establishments should be organised on the same lines, adopting the principle of responsible specialisation, whilst not curbing the initiative of the staff. The organisation of work presents

a similar aspect for all railway systems, and it might be of value for the railways to interest themselves in the work of the national and international bodies in connection with scientific organisation of work.

In this respect it appears to us that the improvements to be effected should consist, in the first place, in the simplification of the operations themselves, and secondly in the improvement of the plant. Finally, a prime factor to be kept in mind for the efficient organisation of work is the employment of staff physically fit to perform their allotted duties, and it is for this reason that attention is drawn to the development of the psycho-technical examination already introduced by a certain number of administrations.

— *Adopted.*

Summary 6 :

The preceding measures concerning the material conditions of the organisation and preparation of work, appear to require the addition of a moral factor in the shape of the confident collaboration of the staff bringing with it a spontaneous display of collective goodwill, based on reciprocal esteem and equitable remuneration according to the efforts exerted and the results obtained.

It is considered that for determining this remuneration, the premium system, already made use of, should be developed. Under this system, payment consists of two elements: one fixed, and the other varying with the quality and quantity of the work done.

The premium should first be introduced at the base, that is for the elementary operations, and be so applied as to remunerate speedily the efforts of each employee and in particular the savings effected in regard to time taken and material consumed and the general efficiency of each establishment.

Gentlemen, does this very important point, since this question of premiums has been very carefully investigated on

every railway, not call for comment by you ?

Most of the railways apply the premium system in very different ways. Would it not be interesting if some of you gave us details about the way the premiums are allocated on their railways ?

The question of the fixed part, and even more so the variable part, is a very delicate matter.

— *No delegates made any remarks and summary 6 was adopted.*

We will now go on to *Summary 7* :

As brought out in the summaries adopted by the Congress in 1930, in connection with Question XVI on its agenda, it is necessary for railway employees to be well versed in their profession and also to have a good general knowledge.

Technical schools and educational schemes of all kinds instituted by the Railways for the instruction of their employees are therefore of first-class utility for the improvement of the railways, and their importance cannot be over-estimated.

Gentlemen, as far as this paragraph is concerned, it would be particularly interesting to know whether the professional schools limit themselves to merely giving their pupils professional training, or if a classical education is also given.

Mr. Soulez (in French). — I should like to give you some details about the organisation for dealing with this matter on the French Nord Railway. In the first place, we have apprenticeship schools for the young people. In a certain number of works the boys are grouped together and we give them lessons, make them do geometrical drawing, and fitters' work : all that is needed to form good workers for the locomotive and rolling stock department. Apart from this, facil-

ities are given to the pupils, and even to employees in the service, to attend certain public schools, such as for example, the public works school, and at the same time we give scholarships to enable certain employees to follow courses at other schools, such as the school of political science, so as to allow to those who reveal possibilities of future development, full scope for forming themselves intellectually, which the resources of their family would not always make possible. In this way employees who are particularly gifted are able to qualify for much higher positions than they could have hoped for with the knowledge they possessed when they entered the railway service.

The President (in French). — We thank Mr. Soulez for the interesting information he has given us. According to this it seems to me that this technical and classical education is only given to workmen. Are there any cases in which such instruction is given to the clerical staff ?

Mr. Soulez. — Yes, Mr. President.

The President (in French). — Are employees who, when they enter the railway service have had an elementary or secondary education, allowed to take up higher courses of study ?

Mr. Soulez (in French). — Yes, such employees are allowed to follow such classes without any material worries, as they receive their usual salary; they can, in this way, improve themselves and acquire the same intellectual development as those who are better off and were able to attend the secondary schools. Furthermore, the railway itself has schools which the staff can attend and where they are taught the general principles and main lines of their work. There are, for ex-

ample, the schools for district inspectors. Employees of this grade follow at certain periods courses in which they can acquire the knowledge necessary not only for them to become good district inspectors, but also to qualify for higher grades. What is done in this way for the district inspectors is also done for the assistant station masters. The assistant station master is the real soul of a station because it is he who supports the station master in all his different duties. At the school for assistant station masters the men are taught not only everything in connection with the regulations, but also, and especially, technical questions, rates questions, etc. When they leave these schools, these young assistant station masters are sufficiently well instructed for them to be able to qualify for the higher grades quickly and to be able to carry out their own duties with a more thorough knowledge of the general requirements.

We also have the same organisation for the head examiners. These men are also sent at certain periods to special schools, so that their knowledge of the different types of stock may be brought up to date, which is a very valuable thing at present in view of the many types of locomotives and wagons which circulate over the railway.

In this way we obtain the maximum of safety by the way in which the work of these head examiners is carried out.

Mr. Panaitopol, Reporter (in French). — In Rumania, we have three kinds of school : elementary, secondary, and higher railway schools. As typical of the elementary schools I will mention the schools for apprentices. In order to be admitted to them, the candidates have to pass an examination and hold elementary school

certificates. The courses for the apprentices are intended to increase and extend the knowledge they have acquired in these elementary schools. The candidates for the secondary railway schools also have to pass an examination. They are usually recruited from among employees who have finished their studies at the elementary schools and served as probationers in a number of different jobs; an example of such a school is that for locomotive drivers. Finally there is the higher railway school. Generally those who wish to attend this school must have finished their secondary courses or else have matriculated or taken some degree, and have served on probation in various specialised capacities. The employees who have followed the courses of the higher school for operating staff have to serve a period as station master, etc., but naturally these periods are shorter. These employees are intended for the higher posts. I may add that this organisation has given very good results.

The President (in French). — May I ask if the employees and workmen follow these courses while at work ?

Mr. Panaitopol (in French). — Yes, during part of the day; during the rest of the time they work. So as not to separate the theoretical and practical work, provision has been made for tutors, dormitories, and boarding schools, so that the employees' time may be fully occupied.

The President (in French). — Are the employees who pass part of their time on the railway and the other part at school able to carry out their duties properly ?

Mr. Panaitopol (in French). — We have found that this method gives very

good results, seeing that the men can at once make use of the theoretical knowledge they have acquired in the schools.

The President (in French). — I should like to point out to Mr. Panaitopol that those who have to deal with the management of a railway know how difficult it is to make use of employees who are only available for duty on the railway half the day. It would seem, therefore, that *a priori* the system applied on the Rumanian Railways is one likely to reduce the efficiency of the staff.

Mr. Panaitopol (in French). — Naturally, the utilisation of the time of these men is not altogether rational but, from the point of view of their instruction, I think the results are very good and we have decided to continue such courses.

Mr. Soulez (in French). — Up to the present, I have only spoken of employees temporarily withdrawn from duty to enable them to follow outside classes. But there are also other methods of instructing the staff, which can be applied within the establishment itself.

As an example, I will take the engine drivers. By reason of their very occupation, these latter are obliged to spend a great deal of time in the depots when waiting for trains to take them back to their place of residence. We make use of this time for collecting the drivers together and giving them lectures on various points relating to their duties. These lectures are not obligatory, and we are pleased to see that they are followed by all the staff, as they find them very interesting and, in this way, improve their knowledge.

What I have just said about the drivers also applies to station employees. During slack periods they are collected for lec-

tures and in particular the outdoor staff are put on their guard against all the risks to which they are exposed; they are shown by examples, and even by films, all bad ways of working which may lead to injuries.

Mr. Bloch, Special Reporter (in French). — I would like to go back a little to what has just been said, but was not discussed.

To give information on the scientific organisation of work we have brought to Cairo a film about this important question, a film which shows how work that is not done on mass production lines, that is to say work similar to that carried out by Railway administrations, can be organised. This film will be shown here at the Heliopolis Palace Hotel next Wednesday, January 25th, at 9.30 p.m.; it is an example of the organisation of work in shops where the work is not done in series.

On the other hand, as regards apprenticeship, and the instruction of the staff, may I in my turn tell you what is done in this connection on the Paris-Orleans Railway? The organisation of general apprenticeship and the instruction of the staff is in three stages.

There is first of all the elementary instruction, i. e. the apprenticeship and the instruction of young men leaving the elementary schools with their study certificates and having to pass three years in a special shop in order to receive technical training which qualifies them to become tradesmen.

Second stage: secondary instruction if you like. The pick of those who have passed through the first stage, the apprenticeship, are selected, and they are sent to attend the classes of the second stage, these being higher classes both from the technical and general education points of view. Those who pass the examination

at the end of these second-stage classes are qualified for supervisory duties.

Finally there are higher classes for those who have attended the high technical schools. These young men, when entering the railway service, have to attend courses and lectures for three years; they undergo an examination at the end of the course, and they have to make reports and carry out practical tests showing that they have received sufficient instruction.

The President spoke just now of special instruction for clerical men. We also take an interest in such instruction. We pay particular attention to the instruction of the draughtsmen. The draughtsmen in the designing offices are frequently merely tracers, and we do our best as far as possible to train draughtsmen who can work out for themselves the proper solutions without having constantly to be told how to do it. For this reason, they must be solidly instructed and, for this purpose, we have organised instruction classes in three stages for young draughtsmen. They are even taken as far as graphic statics.

Furthermore, every year we send a number of our supervisory employees to outside schools in order to perfect their knowledge of matters about which we cannot ourselves give them special instruction. In this way, apart from the school of public works which was mentioned a little while ago, which receives a certain number of employees from the different railways, the Paris-Orleans Company sends some young men to the Higher Foundry School, and to the Autogenous Welding Institute. In this Institute, they are taught flame welding, arc welding, and resistance welding. Moreover, they are given extensive instruction in physics and chemistry.

I must also tell you that a certain num-

ber of our young men obtain University degrees.

We have a certain number of employees who have taken their science degrees, working in their free time for this purpose. They have acted in this way because they know that those who have University degrees are given preference.

Finally, I should also like to mention the instruction, to some extent of a travelling nature, which is given in the different establishments of the railway, in order to improve the education of drivers, shop foremen, and even of workmen. For this end, we have an instruction coach in which there are models of all the appliances the staff has to use. For the drivers we have a model track, with all the types of signals used on the line, on which a small locomotive is run. The drivers are examined periodically to make sure that their knowledge of the signals is good, taking into account any signalling innovation. By means of this instruction coach they are shown why such new devices have been installed. Furthermore this same instruction coach shows in section all the delicate and more difficultly understood parts of the locomotive, such as the brake application valve, the air pump, etc. All these rather complicated parts are shown in movement so that it is possible to see the way they work.

Finally there are substandard films, this size being small, practical and cheap, showing the employees how the work should be done, or ways of working that should be avoided. If need be, a derailment is filmed and discussed. For this purpose the film is projected before employees at the depots, to show them the operations properly carried out and those badly done.

In addition, films have been made of ordinary operations which can be danger-

ous, to show each man how he should or should not carry out his work.

The President (in French). — On behalf of the Meeting, I thank Mr. Bloch for his interesting statement.

Mr. Soulez (in French). — I should like to add yet another word. At the cinematographic meeting on January 25th we will show in particular how vehicles should be coupled up. I might add that the employment of the coupling pole is useful on many railways. This film is at the same time an educational film; it is sent from station to station to show the men how to use the coupling pole.

The President (in French). — I will complete Mr. Bloch's report by reminding you that, on page 1422 of Messrs. Soulez and Bloch's report, there is a list of the films which will be shown at the Meeting on January, 25th.

Moreover, I know by personal experience that the Italian Railways have taken the professional instruction of their staff very far, and if not indiscreet, I would like to ask the representatives of these railways to give us some precisions on this subject.

Mr. Valeri, Reporter (in French). — Mr. President, I thank you for drawing attention to our efforts as regards the professional instruction of the men.

On this occasion, I will give a few details about the organisation as it exists on the Italian State Railways. We have schools for driver apprentices, as well as for electric traction drivers. We also have higher courses for pupil engineers.

All these schools have given us good results. But the present conditions do not allow us to develop them as much as we would like to. One of the most interest-

ing developments has been undoubtedly the « transformation » of steam locomotive drivers into electric traction drivers. In this way we have recruited nearly 1 300 electric locomotive drivers from among former steam locomotive drivers, without much cost, seeing that nearly all our pupils were partly occupied locally while attending the school. The school for driver apprentices is a particular kind of school enabling us to form good fitter-drivers.

For some years, we have also got our Administration to make the leading technical employees and shed foremen attend a third-year school. These men attend this outside school for years and the pupils who have finished a two years' course at the Feltrinelli School, at Milan, have shown themselves to be excellent workers in our shops.

The President (in French). — May I ask you, Mr. Valeri, if in Italy, apart from the professional schools which I call technical schools, you also have professional schools for the operating department, intended especially for the station masters and assistant station masters ?

Mr. Valeri (in French). — We have courses for the operating staff given by engineers and operating inspectors.

The President (in French). — Gentlemen, you have read in the reports that the railways have endeavoured especially to enable men of all grades to be promoted to higher grades. This is an excellent stimulant.

May I ask the representatives of Administrations who have organised professional instruction if this is followed by an examination which the men must take? On the other hand, can men who have

followed these courses successfully qualify thereby for promotion ?

Mr. Valeri (in French). — This is possible in Italy.

The President (in French). — May I also ask if the workman or employee is obliged to follow such courses to qualify for promotion to the higher grades ?

Mr. Valeri (in French). — It is indispensable. A certain distinction has, however, to be made : it is possible, for example, that a workman may be promoted as far as the grade of shop foreman or assistant-foreman without attending special courses, but in order to reach the higher ranks, it is as a rule necessary to follow certain courses of study. To qualify for higher staff positions, such as the head of an important depot, our Administration gives the preference to those who have attended the courses of instruction and perfected their professional education.

The President (in French). — Are there examinations at the end of the year ?

Mr. Valeri (in French). — Those who attend outside schools are required to pass examinations.

The President (in French). — We were told a little while ago that in France, in particular, the employees are allowed leave from the railway and sent to a higher school, to a University, while still getting their salary. Is this done in Italy ?

Mr. Valeri (in French). — No. Only those who attend an outside technical school of which we spoke a short time ago are given leave from the railway; such schools may be considered as secondary schools.

The President (in French). — May I further ask Mr. Valeri, as well as the delegates of Administrations who have organised technical instruction of this kind, if the employees are authorised at their option to attend a higher school of University, or whether the Administration selects those who shall do so ? What criterion is the selection based upon ? By what method does the Administration select any particular employee ?

Mr. Valeri (in French). — The principal criteria, when selecting the technical staff which is to attend the secondary Feltrinelli school are the following : first of all the man must have given proof over a certain number of years that he is very intelligent, diligent and of good behaviour. Moreover, he must have higher professional certificates than those of the elementary school before entering the railway service. In addition, he must be willing to attend the courses.

The President (in French). — Would the Administration send a man who had finished his elementary education to a secondary school ?

Mr. Valeri (in French). — Yes.

The President (in French). — And all this time he would continue to receive his salary ?

Mr. Valeri (in French). — Yes, he would get all his salary.

The President (in French). — You will see from these statements that, in some cases, the Italian Railways send to a secondary school an employee or workman who has only had elementary education; on the other hand they send young men, who have finished their secondary edu-

cation, to higher schools. Is that right Mr. Valeri ?

Mr. Valeri (in French). — No, never to a higher school nor to the University, but up to the present only to secondary schools.

The President (in French). — I think that in France the procedure is different. Mr. Soulez will you enlighten us about this ?

Mr. Soulez (in French). — The French Nord Railway sends some of its employees to two schools : 1. the school of public works which has a railway section. The pupils, to the number of 15 every year, are selected by a competitive examination. The men who work well and display particular interest in the service ask to be allowed to follow these courses. The selection is by means of an examination intended to reveal the intelligence and not the special knowledge of railway matters already acquired. This examination includes questions which will bring out the man's general knowledge, and from it the desired number, that is to say fifteen, are chosen from the top of the list; 2. the school of political science, as I have already said.

The President (in French). — In France, therefore, the choice depends upon the results of an examination, while in Italy the railway takes into account the different qualities an employee should have for this purpose.

— At the request of Mr. Wang, Ministry of Railways (China), the English translation of the above discussions was read out.

Mr. Panaitopol (in French). — I should like to ask another question. The present

discussions show that there are two procedures : some Administrations make provision for the professional instruction of their employees, while others, showing their greater generosity, such as the French Railways make it possible for their employees to improve their general education. I would like to know if other railways do the same as the French railways, seeing that in Rumania we require a certain standard of general knowledge and then facilitate the study of special subjects at the expense of the Administration.

The President (in French). — Mr. Panaitopol's question is, in my opinion, a very clear statement of the problem. Some Administrations only take care to give their employees professional instruction, leaving it to the employees themselves to improve their general education. Other Administrations, and in particular the French Administrations, make it possible for their employees to acquire a general education, independently of their professional training such as the Universities alone impart.

Mr. Panaitopol observes therefore, and with reason, that it would be interesting to know which Administrations try to improve not only the professional, but also the general education of their employees.

Mr. Avery, North Western Railway, India. — On the Railways in India, it is compulsory for all employees to take up all the subjects pertaining to their work, in short courses of study. After about five years, these men have to come back again for studies. These courses are organised by the Railways.

The President (in French). — In fact the French Railways give as we might say scholarships to their employees, i. e. the

latter can follow free of charge University classes. Is this also done in India ?

Mr. Avery. — No, it is not possible to obtain higher education, but only professional knowledge in connection with the shop services.

The President (in French). — Therefore the answer to Mr. Panaitopol's question is the following : while all the administrations are concerned with the professional instruction of their men, only a few take steps to improve the general education of their men. Increasing their professional knowledge is generally aimed at.

Does anyone else wish to speak about Summary 7 ?

— As no one wishes to speak, we can consider *Summary 7 as adopted* by the Meeting.

We will now deal with *point 8* which relates to *Social Work* :

For increasing the feeling of confidence and security of the staff, it is desirable that social and welfare work should be extended.

The measures, which are outside the scope of the actual employment, are aimed at maintaining the physical wellbeing of the employee and his family and assisting their material existence right down to the small-detail. They result in the staff being more devoted to their work, more relieved of daily cares, and can therefore in our view be recommended as highly conducive to the attainment of improved efficiency of the railway systems.

This is a particularly important subject, and I would be very glad to have a thorough discussion on the matter. The question has in fact been asked if some kinds of social work are not too costly, and if the results they give are in proportion with the cost.

Mr. Bloch will now speak.

Mr. Bloch (in French). — As far as the Paris-Orleans Railway is concerned, we have done quite a great deal in this direction. Apart from the sports associations, we have set up a number of clubs for apprentices and for workmen, equipped with libraries, where the men can divert themselves after work. Furthermore, we started some time ago, in collaboration with the Alsace-Lorraine Railways who send us part of their young staff, holiday camps for apprentices and even for workmen under age who have finished their apprenticeship. This holiday camp is in Brittany; a great many young workmen and clerks go there every Summer. It is open from the beginning of June to the end of September, and the men go there for 15 days holiday in the open. It has been a great success. The selection of the young men who are to profit by this institution depends upon the marks they have obtained during the year, so that from the point of view of application to their work, the camp is a very great stimulant.

The question of social work is in my opinion of particular importance seeing that the working day has been reduced from 10 to 8 hours, and in addition that we do not know how much more it is likely to be reduced in the future. In this connection, the report of our Italian colleagues, Messrs. Tosti and Valeri, has shown us that, in Italy particularly, great efforts have been made in this connection by the organisation known as the « *Dopolavoro* » which has given very good results.

Our Italian colleagues will perhaps tell us what has been done in Italy in this respect.

The President (in French). — In my opinion the question should be examined

from two points of view. There is first of all the recreative side : rest or pleasure for the employees. But in addition to this there is the medical aspect of these social works.

There are some Administrations which organise medical services themselves, that is to say they have attached to them doctors who have become real officials. Then there are some Administrations who send their employees, when ill, to certain specially appointed physicians.

It would be useful to know which is the best of these two solutions. In Belgium the system of having doctors definitely attached to the Administration has just been started, so that it would be premature to give the results of our experiment. Before that our practice was to send sick or injured men to certain appointed doctors.

Mr. Soulez (in French). — On the French Railways, the physician is attached to the railway; the other method is not used.

The President (in French). — Is this physician allowed to have private patients as well ?

Mr. Soulez. — It depends on the circumstances.

The President (in French). — In France, therefore there is a double system. First of all there are doctors which I might call medical inspectors, who see up to what point absence authorised by a sickness certificate is justified.

Mr. Soulez (in French). — They also are responsible for examining and watching over the health service in the district they are in charge of.

The President (in French). — If I understand rightly, the French system is as follows : there are medical districts at the head of which there is a doctor who can be simply appointed for the purpose and who, in addition to his railway practice, has his own private patients. There is also a doctor responsible for a large district.

Mr. Soulez (in French). — The French Nord Railway is divided into districts and, at the head of each of these, there is a doctor whose duty it is to give the local doctor general instructions, to follow difficult pathological cases, and finally to keep an eye on the 8 or 10 local doctors who are under his control. None of these doctors is affiliated to any pension scheme.

The President (in French). — This is the first point which we will discuss shortly if you agree.

Are the staff free to choose their doctor in case of illness, and, if so, is their choice absolutely free ? Can they go to any doctor whatever ? On the Belgian Railways, the Administration only refunds a definite sum to the employee.

May I ask what Administrations, like the French Nord Railway, organise their own medical services ?

Do the Rumanian Railways have their own medical services ?

Mr. Panaitopol (in French). — In Rumania we have certain doctors who devote several hours every day to the railway staff, but who also have their own private patients. Each day, for example, from 10 to 12 they attend at their clinics, and examine those who are ill, both from the point of view of the safety of the service and in the interests of the employee himself. In the case of serious illness, the

employee is allowed to call in a doctor to visit him at home. We have nothing like the Belgian system. The staff cannot go to any doctor they please. If not satisfied with the opinion of one doctor, they can ask to be re-examined by another physician in whom they have more confidence, a head doctor, but it must always be a doctor selected by the Administration.

The President (in French). — If the employee can go to another doctor, he has to pay for it himself but, in order to have his absence from work covered by a sickness certificate, it must be signed by the railway doctor.

The French system is the same, I think.

Mr. Bloch (in French). — The case of injured men is an exception to the general rule. The French law gives injured men the right to go to any doctor they like. Consequently the French Railways cannot oblige an injured man to go to their own doctor.

The President (in French). — What fees are asked by the doctors who attend injured men ?

Mr. Bloch (in French). — In practice, the injured men in most cases go to the Company's doctor. They are not, however, obliged to do so; the law allows them freedom in choosing their doctor.

The President (in French). — Are there any Administrations who have organised their own medical services ?

Mr. Aguilar Lopez, Ministry of the Fomento, Spain (in French). — In Spain, the doctors are attached to the Company; they are entitled to a pension and are part of the railway staff. The method is the same as that on the Rumanian system :

the doctors work for the railways two or three hours a day.

The President (in French). — Can a sick employee go to another doctor ?

Mr. Aguilar Lopez. — Yes, at his own expense.

Mr. Lisboa de Lima, State Railways in the Portuguese Colonies (in French). — The Railway Administrations in the Portuguese Colonies have doctors attached to them but if the employee prefers another doctor, he can go to him at his own expense.

Mr. Chiossi, Italian State Railways (in French). — Our health organisation is rather complex; it aims at several ends : *fiscal ends*, seeing that our regulations assure that sick employees shall have very favourable treatment, particularly in the case of men injured at work or victims of professional illnesses; the existence of the sickness must be recognised by doctors in whom the Administration has confidence and the sick men must be looked after to make sure that they receive all the care they need; *health and social ends* : to see that the sick men are well looked after, no matter where they live, and that the financial consequences for them and for their families shall be reduced to the minimum.

The organisation includes a body of doctors who are as much a part of the railway as any other grade of staff. This body of doctors deals with all questions of a general nature, and controls the local health organisation in the interest of the Administration and of the sick. The control of the sanitary conditions of the staff and the care of the sick are assured by an auxiliary body of doctors chosen by the Administration among the best prac-

tising in each district, and controlled in their turn by the doctors definitely attached to the railway. The sick are free to go to the doctors they prefer; they must have their state of health certified by the doctors belonging to the Administration. The Administration also provides many facilities for its sick employees.

There is also a body of specialist doctors, whom the staff can consult, and to which many University professors belong; the Administration has made contracts with certain hospitals, sanatoria, hydropathic establishments, etc., which grant the staff reduced fees or free treatment. There are dispensaries and chemists under contract to attend to the sick and supply medicines at very reduced rates. The *Provident Committee*, which has replaced one of the branches of the « *Dopolavoro* » in this connection, also gives the staff assistance in matters of health to a very great extent.

Mr. Esteves, Portuguese Railway Company (in French). — Our medical service includes doctors who are obliged to look after employees and their families, as well as specialist doctors in the main towns, who charge much reduced fees. In addition, we have assistance committees the Presidents of which can give employees who are seriously ill the financial assistance they need. There are also sanatoria where the men and their families can have every care.

The President (in French). — Are your doctors part of the railway staff?

Mr. Esteves (in French). — Yes, they are part of the Administration.

The President (in French). — I think that one of the chief preoccupations of the railways in setting up such medical

services is to reduce the absence of employees through illness to the greatest possible extent. In Italy, a system of appointed doctors has been set up to which an employee can go to for getting an illness certificate to justify his absence from work. I would like to know if the new system Mr. Chiossi spoke about has reduced the number of men who are absent from work through illness?

Mr. Chiossi (in French). — Our organisation is already an old one. It was in existence, in a less developed form, when the railways were privately owned. The railways then had a body of doctors on the staff, and auxiliary doctors. This organisation was considerably developed after the war; the number of cases of sickness and the average length of absence from work were found to be considerably decreased. At the present time we have reached the minimum since our Administration was formed, i. e. since 1905.

The President (in French). — I can state that the new system which has been started in Belgium has appreciably decreased the number of days employees are away from work; it has even reduced the number of absences.

Mr. Chiossi (in French). — In Italy we have practically halved the number of absences since 1914.

Mr. Wasiutyński, Polish State Railways (in French). — Our medical services deal with the physical and psycho-technical examination of the employees and candidates for railway service. This is the first task of the doctors. They also look after sick employees as well as their families. In a word, it is a medical service which includes specialist doctors and dentists, forming an integral part of the

Administration. The sick are treated at dispensaries and at home, as well as in hospitals and sanatoria belonging to the Company.

The President (in French). — It seems to me that we might sum up the information obtained from these discussions as follows: Certain Administrations have set up their own medical services, while others have a service of doctors under contract, to which their employees can go. In all cases the employee is to some extent free to consult his own doctor.

The Administrations have organised such medical services with a view to reducing as much as possible the number of days employees are away from work through sickness.

This brings us to the second part of summary 8, which comes under preventive medicine, I mean the recreations the railways provide for their employees.

Mr. Bloch has just given us a summary of the steps the Paris-Orleans have taken in this connection: they have provided means for recreation and open air camps. Have any other Administrations done likewise? I know that it has been done in Italy. In my opinion it would be interesting to have the information, we already got in this respect, completed.

Mr. Chiossi (in French). — We are concerned not only with the health of our employees but with that of their families. With this object we have set up seaside and mountain camps. At the beginning the men showed some hesitation due to the fact that they feared that the children might not be sufficiently well looked after. But at the present time these fears have disappeared and we always find it difficult to satisfy all the demands.

At the present time the children are

chosen for reasons of health, preference being given to those of lower grade employees and to the children of the most needy families.

Hospital and special treatments are much appreciated by the staff and have given very good results; the time spent at the said camps is generally one month, but when the doctor of the camp thinks it necessary it may be for two months. This means a complete cure which can be repeated in the following years.

All this involves considerable expenditure for the installation and maintenance; nevertheless we are doing our best to develop these camps as much as possible because of the great benefits they confer upon the staff.

The President (in French). — I should like to ask Mr. Chiossi if the holiday camps are managed directly by the Administration or by a separate organisation.

Mr. Chiossi (in French). — They are managed by the Railway Administration.

The President (in French). — Consequently you employ men to look after them?

Mr. Chiossi (in French). — We have the Provident Committee which deals with all this: the doctors, the managers of these camps, etc., are not as a rule part of the regular railway staff.

The President (in French). — Are the children and employees sent to these resorts free of charge?

Mr. Chiossi (in French). — Yes, more or less free. A small contribution may be asked, but the railway is very generous in this matter.

The President (in French). — Is it the same on the Paris-Orleans Railway ?

Mr. Bloch (in French). — Yes, but we are not very exacting.

The President (in French). — Do the railways pay the costs of these organisations ?

Mr. Chiossi (in French). — The colonies are organised by the Provident Committee whose income is derived from investments and deductions from wages. All the employees have to contribute a small amount to this social « Provident Committee ».

The President (in French). — The deductions from the men's wages are not intended to provide solely for their pensions but part is intended to cover certain facilities granted to the staff and their families.

Mr. Soulez (in French). — The same system is found on the French Est and Midi Railways.

Mr. Chiossi (in French). — In each district of any importance there is a section of the « Dopolavoro » organisation, which includes an agrarian section, the educational Dopolavoro, the sporting Dopolavoro, etc. All sports are represented : cycling, football, tennis, gymnastics, boxing, etc. There are also sections for the education of the staff from which many classes of employee profit : courses are organised in languages, drawing, telegraphy, general knowledge, etc.; there are libraries, lecture rooms, etc.

Mr. Bloch (in French). — Do you have a centre in every district where there is certain number of employees ?

Mr. Chiossi (in French). — Yes, where the accommodation could not be supplied by the Administration, room has been rented. New buildings have even been erected in large centres, such as Rome, for example, where the organisation is very highly developed.

The President (in French). — Is this only for railway employees ?

Mr. Chiossi (in French). — We have our own « Dopolavoro », but there are branches for all the other State Administrations as well as for many private concerns.

Mr. Esteves (in French). — In Portugal, holiday camps have also been organised for the employees and their families. There are associations for sports, games, etc.

Mr. Panaitopol (in French). — In Rumania, the officials have a pension scheme supplied by deductions from their salaries. Apart from this, there is an assurance scheme for the officials and railway employees. This is made up of a tax on railway tickets. The income is about one twentieth of that of the railway pensions. This scheme is autonomous; it is managed by an administrative board on which the railway officials are represented. This organisation manages the school camps, sends the children of employees to watering places at its expense, but does not deal with sporting matters. We have a sports association the cost of which is carried by the Administration and we are about to introduce organisations similar to those in existence in Italy, which, we hope, will give us good results.

Mr. Chiossi (in French). — The « Dopolavoro » derives its income in our case from the Administration : 800 000 francs

and a sum proportional to the number of employees belonging to the « Dopolavoro », as well as contributions from the men, as a rule two or three liras a month. This also makes it possible to raise money for constructing the buildings needed by the « Dopolavoro ».

The President (in French). — How are these organisations set up? Are they set up in each town?

Mr. Chiossi (in French). — Yes; if there are a certain number of men grouped together in a centre. We have several hundreds of centres already organised, and the group is organised on the initiative of the local managers.

When a group is recognised and its staff appointed, it is allowed to share in the funds of the institution and carries out its activities under the control of the higher organisations.

The President (in French). — Your organisation is undoubtedly the most complete in existence. I should like to know if the management of these different organisations is confided to an Administrative Committee?

Mr. Chiossi (in French). — There is a Central Office of the « Dopolavoro » established at General Headquarters, in Rome. The financial control is exercised by the Chief Accountant at the Head Office. The local groups are also controlled by the committees set up under each regional management, particularly from the point of view of their activity and development. The management is looked after and controlled at all its different stages.

The President (in French). — By whom will a local organisation of this kind be managed?

Mr. Chiossi (in French). — By a President appointed by the Administration and chosen from among the men in whom the other employees have most confidence.

The President (in French). — I wanted to know if any account was taken of the rank of the men?

Mr. Chiossi (in French). — No, this is not taken into account. The choice can fall just as well on an employee of a low grade as on one of a higher grade; the choice falls on those members who are particularly devoted to the institution and have shown that they have a particular gift for organising the activities of the « Dopolavoro ». A workman may very well be at the head of the local branch. Although membership of the « Dopolavoro » is voluntary, in practice it is general: everyone is a member of it and everyone shares in it: it is a real brotherhood.

The President (in French). — With such an organisation, have you not found that this mingling of all the grades of employees may be harmful to the principle of authority?

Mr. Chiossi (in French). — No, authority intervenes every time there is a dispute about anything whatever. The possibility of properly managing a local group of the « Dopolavoro » does not depend upon the official standing of the managers at all; the success of the method followed proves it.

Mr. Teodoreano, Ministry of Railways, Rumania (in French). — I should like to know if, when an organisation of the « Dopolavoro », is set up in a centre, all those belonging to the centre are obliged

to join it, or if this participation is voluntary ?

Mr. Chiossi (in French). — In principle, participation is voluntary, but in practice everyone joins.

Mr. Panaitopol (in French). — Do they have to ask to join, or have they to ask for express permission not to join ?

Mr. Chiossi (in French). — No, it is not necessary to ask to be excluded; participation is absolutely voluntary. The advantages are the same for everyone, and everyone pays the same contribution.

I should like to add that the Italian Administration will be very happy to let anyone who likes see for himself what has been achieved in this field.

The President (in French). — In the name of us all, I thank Mr. Chiossi for being so obliging as to give us such a complete and interesting summary of the work done in Italy, and in particular by the « Dopolavoro ».

Does anyone else wish to say anything about summary 8 ?

Mr. Wasiutyński (in French). — It seems to me that it is necessary to make a slight change in the wording of the summary. I should like to see the opinion of the Reporter replaced by that of the Congress.

The President (in French). — May I point out to Mr. Wasiutyński that if this question is retained, we should also have to alter the text in other places. I am thinking of point 4 (French text) in particular : « ... Dans cet esprit, nous estimons pouvoir recommander, etc. »

The Special Reporters submit certain summaries for our approval, and it is for

us to decide if their proposals are justified.

We might say for example « Dans cet esprit, le Congrès recommande... » or « ...on peut recommander... » (*Agreed.*)

Mr. Wasiutyński (in French). — I do not quite understand the meaning of... « paraissent à retenir » in summary 8.

The President (in French). — I suggest we replace : « Elles nous paraissent à retenir comme pouvant avoir ... » by : « elles ont ». I will read again the last sentence of Summary 8 :

« Elles permettent d'avoir un personnel plus dévoué à sa tâche, plus dégagé des soucis quotidiens et par là, elles ont une importance de tout premier plan pour le rendement des réseaux ferrés. »

— *Summary 8 is adopted with this modification to the French text. The English text is :*

« They result in the staff being more devoted to their work, more relieved of daily cares, and can therefore be highly conducive to the attainment of improved efficiency of the railway system. »

Mr. Aguilar Lopez (in French). — I should like to point out that we have not discussed the co-operation of the staff towards increased efficiency and its participation in the profits.

Mr. Bloch (in French). — This question was dealt with in detail at the Madrid Congress. We have referred to the different reports.

Mr. Aguilar Lopez (in French). — But this question was adjourned because it was rather complex and now it has not been dealt with here anymore than it was at Madrid.

The President (in French). — Without intervening in the discussion, I should like to point out that this subject appears to have been dealt with in Summary 6 where it says :

« It is considered that for determining this remuneration, the premium system, already made use of, should be developed. Under this system, payment consists of two elements : one fixed, and the other varying with the quality and quantity of the work done.

Mr. Aguilar Lopez (in French). — In my opinion this is quite a different matter : it does not deal with the question of the profits.

Mr. Soulez (in French). — The question of remuneration is connected with two distinct elements : the participation of the staff in the efficiency, where the question of « premiums » comes in, and their participation in the profits, i. e. a portion of the earnings of the System attributed to the staff as a whole and distributed according to a special formula. If you will refer to the other reports, you will see that this question has been dealt with. We did not think we should take it up again in the general considerations, because, as we remarked in our special report, very few administrations let their staff share in the profits. There are some French Railways who do so in the form of working premiums and I think they are about the only ones. Consequently we could not draw up any general summaries on this subject.

Mr. Aguilar Lopez (in French). — I understand the Reporter's difficulty: they say there are very few administrations who have this system. However, I must return to my point of view : we ought to

have a 9th summary or adjourn the question.

The President (in French). — I think that in the different summaries we ought not to deal with premiums alone, but also with profit sharing.

In Belgium, we have a system by which the staff shares in the profits.

I think we ought not to be too precise. The question, as has already been said, is a too difficult one; it overflows the boundaries of railway operation; it has a general, social, and even a political significance. We ought to try, if you agree, to find a formula for tomorrow, which would take into account the idea developed by Mr. Aguilar Lopez.

In Italy, the staff does not participate in the profits; I would like to know Mr. Chiossi's opinion on this subject ?

Mr. Chiossi (in French). — The question of the participation of the staff in the profits is a very delicate one. It is very hard to estimate the activity and good will of the staff, but a great deal can be done in this field. We also have annual bonuses for certain classes of employees, which can be considered as a sort of participation in the profits. We have not developed it very much, because it frequently happens that there is a great disparity between the output and the profits. The net products, that is to say the profits, can be lost for reasons that have nothing to do with the good will and efficiency of the staff, even when the latter are doing their very utmost.

The President (in French). — We can even state that in periods of depression, when profits cannot be expected, one must expect, and everyone does expect, more from the staff than in normal times. When there is participation in the pro-

fits, the question always arises : should the staff share in the losses as well as in the profits ? The usual answer is : first of all the wages, and then a share in the profits. The wages are the payment for the work done.

Mr. Chiossi (in French). — I think that most Administrations allow the staff to share in the profits to some extent, but it is a limited participation.

The President (in French). — But is the bonus dependent on the profit, on the net product of the working ? We must clearly define the meaning of the words : « participation in the profits. »

Mr. Bloch (in French). — This was explained very fully in the special report, on pages 142 and 143. We reported just what Messrs. Tosti and Valeri said about it :

Premiums for the general efficiency of the Railway. — This kind of premium, which has been introduced by a certain number of administrations, appears to be capable of a great deal of improvement yet, compared with what is being done at present.

It would, moreover, be possible to draw up a summary about this subject.

The President (in French). — The text which Mr. Bloch has just read shows that a distinction must be made between participation in the profits and premiums. Consequently, the whole question stands. It is all very well to say : the employee is given an additional salary; this additional sum is calculated by taking into account the participation of the employee in the proper working of the railway system. As soon as the employees benefit proportionally to the work they have done, it becomes a premium, not participation in

the profits. In the case of the higher officials, it is quite impossible to determine how far they have taken part in earning the profits.

Mr. Chiossi (in French). — It is easy to decide the output of certain employees, but extremely difficult in the case of others.

The President (in French). — I think we should be very careful how we word this summary. The thing must be mentioned, but I think it would be better to avoid expressing an opinion about the principle of letting the staff share in the profits.

Gentlemen, we meet again tomorrow at 9.30 a. m. Do you wish us to reword the summary before then ? The new wording will be put before you, and if you should have any other remarks to make on the participation in the profits, we shall be very interested to hear them, seeing that the question concerns not only the transport industry, but industry in general.

Mr. Aguilar Lopez (in French). — It seems to me that the question is a bad one, and one that should not be raised before a Railway Congress; it is a question of political and social import.

The President (in French). — The railway industry is certainly the most important of all industries, and it is therefore logical that we should have to deal with this question. The fact that it is a particularly difficult one as has been said, is yet another reason why we should discuss it.

The Special Reporters did not find that there had been sufficiently wide experience among the railway administrations to enable us to draw up a definite summary, and consequently, if you agree, we

will try to draw up a summary expressing this. It will be put before you tomorrow. (*Agreed.*)

We may therefore consider the summaries, drawn up by the Special Report-

ers, as approved with the exception of that dealing with the participation of the staff in the profits, which we will discuss at tomorrow's meeting.

— *The Meeting adjourned at 12.20 p.m.*

Meeting held on the 21 January 1933 (morning).

Mr. HENNING, VICE PRESIDENT, IN THE CHAIR.

— The Meeting is opened at 9.30.

The President. — Gentlemen, today we will again discuss Question X, which we dealt with at length during yesterday's meeting. Today's *Daily Journal of the Session* gives the minutes of these discussions, and I hope that you have all read them.

May I ask if you have any remarks to make about these minutes?

— As no remarks are being made, we may consider these minutes as approved.

Gentlemen, yesterday we adopted the eight points forming the summaries of the Special Reporters. But Mr. Aguilar Lopez pointed out that the summaries did not directly mention the participation of the staff in the profits. At the end of yesterday's meeting we decided to complete the summaries by a mention of this subject. As, however, the discussions which took place yesterday on this point were not translated into English during the same meeting, we have decided to begin the meeting today with this translation.

— *The English translation was then read.*

Sir Henry Fowler, London Midland and Scottish Railway. — This question was not considered as of immediate import-

ance for the English staff, seeing that it is rather of a political and general nature, and that we cannot give it a definitive solution in our present discussion.

The President. — Will Sir Henry Fowler allow me to make a slight observation: our Section has on its agenda a question worded as follows: « Instances of the application in a railway department of the scientific organisation of work. Co-operation of the staff towards increased efficiency and its participation in the profits. »

The Reporters and the Special Reporters were, therefore, obliged to consider this very precise point and the conclusions we arrived at yesterday showed what Sir Henry Fowler has said, i. e. that it is a very difficult question, that it concerns, not only railways, but the whole of the political and social economy. This was also the reason why the Meeting asked the Bureau to draw up a summary in this sense.

Gentlemen, we can now continue our work. I would have read you the additional summary which has been drawn up, but I must first of all tell you that some of our colleagues were held up by a shipping delay. This is particularly the case as regards Czechoslovakia, and the delegation for this country has asked me to allow them, with your consent, to put before the Section today some details

about a completely new system which has been introduced in Czechoslovakia. This system appears to be half-way between premiums and a participation in the profits.

I now ask Mr. Hondl to speak.

Mr. Hondl, Czechoslovakian State Railways (in French). — Gentlemen, the system known as « à l'entreprise » (contracting) ⁽¹⁾, about which I am going to speak and which we introduced two years ago on the Czechoslovakian railways was already mentioned by Messrs. Marin del Campo and Canoyas del Castillo in their report on Question XV for the XIth Session (Madrid 1930) ⁽²⁾ and by Messrs. Mereutza and Panaitopol in their report on the present Question X. May I add here some additional information as regards the favourable results obtained on our railway by the trials of the above mentioned system. We introduced this system in 1931 in two services, and, in 1932, applied it to other services. We propose to still further increase its application during 1933. Moreover, I am in a position to tell you some of the results.

The « contracting » system was introduced in the Printing Office, at Prague, as from the 1st April 1931 and the balance sheet for the first period ended the

31st December 1931; the trial therefore lasted for 9 months. As regards the results obtained, the following remarks can be made :

Through standardising the printed matter as from the 1st April 1931, we fixed new uniform rates for printed matters 12.08 % below the actual rates applied in March 1931.

The results obtained from the point of view of the balance sheet are the following :

1. Purchases of printed matter by the Depot at standard reduced rates 5 514 970.68
Saving effected on the purchases (i. e. about 16 %). 879 880.16
2. Total amount of the effective costs of the Depot from the 1st April to the 31st December 1930 543 637.32
 Total amount of the effective working costs for the same period of the year 1931 435 058.08
Saving effected (i. e. about 20 %) 108 579.24
3. Stocks of printed matter and fiscal stamps at the 1st April 1931 3 023 495.70
 Stocks of printed matter and fiscal stamps on the 31st December 1931 1 687 389.77
Reduction of stocks (i. e. about 44 %) 1 326 145.93
4. Net profit shown on the balance sheet :
 Portion of the administration (about 63 %) 353 594.25
 Portion of the compensation fund (about 11 %) 63 218.06
 Portion of the 38 employees (about 26 %) 142 926.10
Total profit . . . (approx.) 559 738.50
5. The number of employees has been reduced, at the initiative of the Depot itself, and in spite of a considerable increase in the business, from 38 to 34 i. e. by about 10 %.

(1) The system known originally as the « contracting » system is at the present time called the « autonomous economic system ». This name indicates the object of the system which is founded on the greatest possible independence of the staff in carrying out all the railway duties, including the individual output of each railway employee. The interest the employees show in the efficiency of the service in this way also guarantees the proper carrying out of their individual duties. The essential principles of this system are given in the report by Messrs. G. Mereutza and G. Panaitopol, pages 2017 to 2019 of the *Bulletin of the International Railway Congress Association*, No. 10, October 1932.

(2) See *Bulletin of the Railway Congress*, January 1930, p. 253.

The above quoted results have enabled the unit rates for printed matter to be still further reduced by 10 % for the year 1932. In reality the prescribed unit rates were 20.87 % lower in 1932 than they were in March 1931.

Without forgetting that these results are not entirely due to the merits of the way the depot is run, seeing that in 1931 the price of paper fell by 5 %, that the economic depression has obliged the printers to quote better prices, and that the new regulations for the printing service, owing to the carrying out of a general standardisation, has caused a partial reduction of the costs, it will be seen that very good results have been obtained, and that the employees of the Depot, on their own initiative, without special orders and without any control, have profited in every way from the possibilities that offered, that this has greatly benefited the Administration of the State Railways, and to an extent that could not have been obtained by any other method.

At the same time, it must not be forgotten that the other indirect profits of the Administration consist of: precision in carrying out the service; a more exact control in the interests of economy on printed matter and the consumption thereof; a more or less precise estimation of the consumption of printed matter in the future. On the other hand, there is the guarantee that the printed matter will be accurate; the control is simplified, and finally the employees are allowed to act on their own initiative, and their constant efforts tend to simplify the service and at the same time improve the output and the economic results. In this way we avoid losses through superfluous stock, through excess staff, through an excess of cancelled printed matters, decreases in the value of the stock when prices go

down, and finally losses due to errors of accountancy or consignment services.

These favourable results, the accuracy of which has been checked by repeatedly going through the figures, have led the Administration of the State Railways to extend this trial to the year 1932. The contracting system was introduced as from the 1st January 1932, first of all in the two printing depots, i. e. over the whole extent of the Czechoslovakian State Railways (for purchase and distribution) and then in the Ticket Printing Depot at Prague (where the tickets are produced), and finally in two sections of the Permanent Way Maintenance Department, where the conditions are more complicated and need to be carried out very differently from the way the work is done in the other departments.

The regulations for the year 1932 were perfected in the same way as those for the year 1931. Naturally, advantage was taken of the experience already acquired in order to improve the instructions, particularly in stressing the principle that the profit should be shared between the employees and the Administration after taking due account of the amount of energy the employees had to use in order to make a profit (commercial profit as distinct from working profit). In addition some of the formulæ used for calculating the distribution of the profits were improved.

The results for the year 1932 were again satisfactory for all the trials made. The information given below proves this:

a) *Printing depots* (over the whole Czechoslovakian Railway System).

The unit costs of printed matter were fixed, in comparison with those for the year 1930, at 12.08 % below those of 1931, 20.87 % lower than in 1932, and 23.03 % lower than in 1933.

The effective cost price decreased in 1931 by 19.45 % and in 1932 by 30.00 %, in comparison with the year 1930.

The decrease in stocks at the depots was 42.30 % on the 31st December 1931, and 62.70 % on the 31st December 1932, in comparison with the amount of stocks on the 1st April 1931.

The management costs relating to the distribution of printed matter has decreased in comparison with the year 1930, by 9.58 % in 1931, and by 44.13 % in 1932.

The total expenditure of the Czechoslovakian Railways on unsaleable printed matter (including the cost of distribution) was :

In 1930, 14.02 million crowns (100 %);
In 1931, 9.39 million crowns (67 %);
In 1932, 7.86 million crowns (56 %).

For the year 1932, the 55 employees were paid as their share of the profits about 205 000 crowns.

b) *Ticket printing depot.*

The output of the employees has increased by 35 % when compared with that of 1931.

The profits shown by the balance sheet was about 402 900 crowns, which were distributed approximately as follows :

	Crowns.
To the Administration	153 300
To the compensation fund	39 900
To the 74 employees.	209 700

In 1931, 1 000 tickets cost the Administration of the State Railways 18.46 crowns, so that the saving on 1 000 tickets was 3.20 crowns, i. e. 17.34 % and the total saving made by the Administration for the year 1932 when 152 300 000 tickets were issued, reached 487 360 crowns.

The results obtained in the depots as well as in production were partially due to the reorganisation of the service. However the reorganisation of the service (by the suppression of one depot and one ticket issuing office) was carried through successfully precisely because of the zealous co-operation of the employees.

c) *Maintenance of permanent way and buildings.*

In the case of two trials made up to the present, the results have only been noted for one section.

Of the total length of the lines in question, 52.190 km. (32.4 miles) are on the straight, while 57.483 km. (35.62 miles) are curves of small radius for the most part (250, 280 and 380 m. = 12 1/2, 14 and 15 chains).

On the above mentioned lines there are altogether 386 culverts; overbridges, subways and bridges, three of which are large metal bridges respectively 161, 170 and 212 m. (528, 558 and 695 1/2 feet) long. There are also 6 tunnels the total length of which is 821 m. (2 694 feet), and 144 masonry buildings and 80 secondary wooden buildings.

The staff of the section in question made no objection to the introduction of the contracting system, and did their best to increase their output, as soon as they saw that such increased work would also increase their earnings.

Seeing that in the case of the maintenance services, it is possible in particular to effect a saving on the sleepers, it was found necessary to avoid all useless operations, whereas the useful work had to be done in the most efficient way.

The savings effected by the section are shown in the table hereafter, which gives the working hours.

Work done.	Hours of work during the years			Saving, %, in 1932	
	1927-1931 (average)	1931	1932	In comparison with the average for 1927-1931.	In comparison with the aver- age for the year 1931.
1. Maintenance of equip- ment as well as transport over the lines of lighting material and fuel	13 658	12 070	7 600	44.35	37.02
2. Maintenance of the sub- structure	90 756	103 459	80 373	11.44	22.31
3. Maintenance of the su- perstructure	228 394	217 683	187 850	17.75	13.70
4. Maintenance of the build- ings	27 286	28 630	20 500	24.56	28.40
5. Total	360 094	361 842	296 323	17.70	18.10

The expenditure on the normal super-
vision and upkeep service for the lines
concerned (exception being made of dam-
age caused by bad weather and traffic ac-
cidents) was, for the period of 5 years
from 1927 to 1931,

on the average 4 103 982 crowns,
in 1931 3 959 066 id.
and in 1932 3 426 810 id.

This shows that the expenditure for
the year 1932 was lower by 16.50 % than
the average for the 5 years 1927 to 1931,
and 13.44 % lower in comparison with
the year 1931.

The increase in the output of the staff
is most striking when relaying the per-
manent way which was done during 1932.
During this year 1 km. (0.62 mile) of
rails of the X system were laid on 23
sleepers per length, the work taking
9 hours as compared with 14 hours in
1931, so that the number of hours requir-
ed in 1932 was lower by 35.71 % than in
the preceding year.

The contracting system has also in-
fluenced the reduction of stocks of main-

tenance stores. The stock was 24.55 %
lower in 1932 than in 1931.

The most appreciable saving effected
by the contracting system however lies in
the fact that all the operations required
in maintenance work have not only been
carried out diligently but also very con-
scientiously and in a well considered
fashion, so that the work will last, and
we can stress the fact that the mainten-
ance of the lines of the Section during
1932 has, not only been much less costly,
but better done than in the preceding
years.

Because of the savings effected the Sec-
tion has carried out the following excep-
tional works for which the Administra-
tion of the State Railways has not given
it any credit either as maintenance or as
new work :

1. two reconstructions of the line over a
length of 700 m. (0.435 mile); and

2. the construction of two parallel roads
of 504 m. (0.313 mile) long to replace
level crossings that had to be abolished.

The above mentioned results encourag-

ed the Czechoslovakian Railway Administration to continue its trials during 1933. From the 1st January 1933 the contracting system will be continued wherever it has been introduced up to the present, and in addition the trials have been extended to a stores and to 12 other sections of the permanent way maintenance department. It is probable that a further extension of the system will be made during 1934, partly to other branches of the service and partly to extend the system to cover the whole of a branch of the service (including the management thereof).

The results of the trials made up to the present show that the employees, as well as the Administration, profit by the contracting system. These results show — a fact which moreover is evidently not well recognised everywhere — that it is not possible to get a permanent improvement in the efficiency of the employees otherwise than by allowing them to profit by any increase in their output and in the economic results of the undertaking.

There are also documents which show that the success of the undertaking depends upon the good will and the collaboration of the employees, and how important it is that the Administration should, in its own interest, do everything it can to assure such co-operation by linking up as closely as possible the interests of its employees with the interests of the undertaking by allowing the employees to share in the profits.

It must, however, be remarked that the contracting system has been seriously criticised by many (first of all by the employees' unions, and then, but to a lesser extent, by the employees themselves though the greater number appreciate the system, their criticisms being founded upon a fear of its practical application rather than upon objection to its prin-

ciples). It is really more a question of prejudices than of criticisms, due to a mutual distrust between the Administration and its employees. However, such objections decrease with the extension of the trials and with the practical application of the principles of the contracting system, so that we are justified in thinking that they will completely disappear in time, as a result of the common effort to re-organise the whole of the Czechoslovakian Railways' undertaking in accordance with this system.

The President (in French). — Gentlemen, I am sure you will all want to thank Mr. Hondl for his interesting statement. In order to facilitate your discussions I would like to sum up the new system tried in Czechoslovakia. But I must admit, Mr. Hondl, that I do not quite understand your expression : « d'entreprise » (contracting system).

What does this contracting consist of in fact ? Let us consider that a section of track x miles long has to be relaid; according to your estimations the work ought to cost a certain sum, and if the work is carried out by your engineers, foremen, and workmen, at a lower cost, is it this difference between your estimate and the actual cost which is divided between the staff and the Administration ?

Mr. Hondl (in German). — The work is split up into divisions, each of which is under the control of a workman, foreman, or official. Each division must calculate the cost of the work imparted to it, and it sends in this estimate. If one division has to get stores, etc., from another, it gets them and is debited for their value.

When the division carries out the work at a proportionally and experimentally lower cost or in a shorter time than that

expected by the Administration (who is always very careful to check that the work has been done really well) it has a right to a portion of the difference between the real cost and the estimate the Administration got out in advance.

It is the same with the stores for the printing department. If an employee charged with the purchase of stores is able to meet requirements at a better price than that laid down in the estimate — such reductions in price can be readily obtained by regular repeat orders — or if he is always very regular, without delay or loss of time, in sending the necessary office stores to the stations and thus prevents large accumulations of stores in the stations, he makes a saving for the Administration, part of which is given to him.

The President (in French). — Briefly, the system is not directly a participation in the profits, but rather a participation in the savings effected thanks to the initiative of the employees. This initiative shows itself not only in the maintenance or operating departments, but also as regards the staff, i. e. a gang which formerly consisted of 20 men may be reduced to 10 or 15. The saving thus effected is divided between the staff and the Administration.

— Does anyone wish to speak about the Czechoslovakian delegates's report ?

Mr. Goonetilleke, Ceylon Government Railway. — Do these Railways let the personnel participate in the benefits without touching their salaries ?

Mr. Hondl (in German). — The staff, and workmen in general, receive their usual wages or salary, and the participation in the savings is really an addition to their earnings.

Mr. Wang, Ministry of Railways, China. — Speaking of economies, are they arrived at by comparing the results of the new system applied for a short period only, or by comparing the results of the averages of a long period, say five or six years ?

The President (in French). — The comparison has been made in Czechoslovakia over a period of three years, i. e. the year 1932 is compared with the years 1930 and 1931. However, this consideration, according to Mr. Hondl's report, has only a relative value: Let us take for example the relaying of the track; the technical service decides what such repairs would cost normally. When the staff make a saving on this normal price, this saving is divided among the staff and the Administration.

Mr. Hondl (in German). — When it is found necessary to carry out some particular work or order stores, the Administration gets out a detailed estimate of the cost; if the staff carry out the work more economically or buy the stores at a more advantageous price, they have a right to part of the difference in price.

The President. — Has anyone else anything to say ?

— As no new remarks are being made, I will sum up Mr. Hondl's statements, so that we can draw up a new summary.

We see that the Czechoslovakian Railways have two objects in mind. First of all there is the preoccupation common to all railways of effecting savings by centralisation. This centralisation is sometimes due to the Administration and sometimes to the initiative of the staff. The second preoccupation is to reduce the cost price by better work on the part of the staff and by reductions in the

number of men, suggested by the staff itself. These are the three factors which enter into the contracting system of the Czechoslovakian Railways.

Mr. Hondl (in French). — Mr. President, I should like to point out in addition that the problem we have before us was also discussed at the Scientific Organisation of Work Congress at Amsterdam last year; the report on the question was drawn up by Dr. Vsetecka ⁽¹⁾.

The President (in French). — As Mr. Hondl has reminded us, the question with which we are now dealing and which the Czechoslovakian Railways have studied particularly carefully, has already been discussed at the Scientific Organisation of Work Congress at Amsterdam in 1932.

Gentlemen, I think that you, as well as Mr. Hondl, will agree that the Czechoslovakian Railways are now making an experiment, but one which has not lasted long enough for final conclusions to be drawn from it. We are following it with great interest and it is to be hoped that we shall all profit by it.

We now have the honour, Gentlemen, of submitting to you a new summary to be inserted between the present summaries 6 and 7, and which would be worded as follows :

From the reports it appears that no administration strictly speaking grants participation by its staff in the benefits of the undertaking.

Certain administrations distribute among

(1) See : Fifth Scientific Organisation of Work Congress at Amsterdam, 1932, Volume II, pages 7-61-71. Question 7 : What are the relative advantages of the different ways of interesting the workman in the increase of his output ? « Principles of the Contracting System and its Application on the Czechoslovakian State Railways. »

their employees sums calculated on the general results of their working or on economies realised. This scheme being recent and limited to a small number of administrations, it is not yet possible to draw final conclusions on this matter.

In this way we shall have met the wishes of Mr. Aguilar Lopez by touching upon the question of the participation of the staff in the profits, while at the same time stating that, at the present stage of development of this question, it is not possible to make any definite statement, either for or against it.

Mr. Hondl (in German). — I propose that so that it should not be too negative in form, the end of the summary be worded as follows :

Although the results obtained so far have been favourable, no conclusions can be formulated at present on this system, which is still new and is only resorted to by a few Administrations.

The President (in French. — Gentlemen, to please the Czechoslovakian delegate, we put the following wording before you :

From the reports it appears that no Administration strictly speaking grants participation by its staff in the benefits of the undertaking.

Certain administrations distribute among their employees sums calculated on the general results of their working or on savings effected. Some of them consider that favourable results can be anticipated from now onwards. However, this scheme is very recent and limited to a small number of administrations, and it is not yet possible to formulate final conclusions on this matter.

Mr. Hondl. — Thank you, I agree with that.

— *The new text is adopted and becomes Summary 7.*

Mr. Aguilar Lopez (in French). — I think we should thank our President for the way in which he has carried out his delicate duties. I should also like to have mention made in the minutes of a motion to congratulate the Special Reporters on the very complete and valuable work they submitted to us.

The President (in French). — I was going to express our very sincere thanks to Messrs. Soulez and Bloch, Messrs. Tosti

and Valeri, and Messrs. Mereutza and Panaitopol. Their work, as has been said, was particularly difficult as they had not only to deal with a question of general interest.

The work has been done in a remarkably clear way and the congratulations and thanks of the Meeting are especially due in my opinion to our Special Reporters, Messrs. Soulez and Bloch. (*Applause.*)

— The Meeting ended at 11.20 a.m.

DISCUSSION AT THE PLENARY MEETING

held on the 24 January 1933 (morning).

H. E. IBRAHIM FAHMY KERIM PASHA IN THE CHAIR.

GENERAL SECRETARIES : MESSRS. P. GHILAIN, YOUSSEF RISGALLAH BEY,

Dr. I. G. LEVI and FOUAD HASSIB BEY.

ASSISTANT GENERAL SECRETARIES : Sir HENRY FOWLER and Mr. P. WOLF.

Mr. Ghilain, *General Secretary*. — We now come to the summaries of Question X, discussed by the 4th Section. The text has been published in yesterday's issue of the *Daily Journal of the Session*.

— *These summaries are read out.*

The President. — Are there any objections as regards the text of these summaries.

Mr. Wolf, German State Railway Company, and *Assistant General Secretary* (in French). — I should like to draw your attention to a printing mistake in the German version : under summary 7, 2nd paragraph, it should be : « Einzelne Verwaltungen... » instead of : « Die einzelnen Verwaltungen... ».

Mr. Henning, Belgian National Railways Co. (in French). — The Spanish and Czechoslovakian delegates have asked me to suggest to the Plenary Meeting that point 7 be completed by this sentence :

« The question should be dealt with again at another Congress when the results of the trials now being made will be known. »

If the Meeting agrees to this, I suggest that it should be left to the Permanent Commission to decide when it is opportune to re-examine the question.

Mr. Ghilain (in French). — Account will be taken of the fact that the Section wants the Permanent Commission to include this question in the agenda once again.

The President. — Are there any other remarks ?

Mr. Ibl, Ministry of Railways, Czechoslovakia (in French). — In the name of the Czechoslovakian delegates, I thank you, Gentlemen, for agreeing to our proposal.

I only have one other observation to make. I should like it to be noted in the minutes of the Plenary Meeting that the first sentence of the second paragraph of summary 7 also includes the case of the Czechoslovakian Railway Administration which, as you have learnt from the report of my colleague, Mr. Hondl, has applied experimentally with very encouraging results on some lines of the system — particularly in the case of permanent way maintenance services —, a system the object of which is to stimulate, by allowing them to share in the profits, all the staff of these units to improve their output, each unit being considered as a separate undertaking inside the operating as a whole.

I should like this observation to be recorded in the minutes consequently if,

as I think it is, the case of our Administration is covered by the very happy wording of this first sentence in the second paragraph of summary 7.

Mr. Ghilain (in French). — It seems to me that Mr. Ibl would be satisfied if the second paragraph of summary 7 said: « Some railways, among them those of Czechoslovakia... » etc.

I do not think it is necessary to discuss so straightforward a matter.

Does everyone agree that the words « among others those of Czechoslovakia » be inserted ?

Mr. Goonetilleke, Ceylon Government Railway. — I rise, Mr. President, to oppose the amendment proposed by the Delegate for Czechoslovakia. When this subject was discussed at the Sectional Meeting the impression left in my own mind, and I have no doubt in the minds of most of the Delegates present, was that the scheme outlined by the Delegate for Czechoslovakia could not really be described as a scheme under which railway employees participated in railway profits. The Delegate explained how savings in expenditure under printing and stationery were distributed amongst employees. I venture to submit to the members of the Railway Congress in Plenary Session that a scheme such as this cannot be described as a profit-participation scheme. We have no data made available of any scheme where railway employees do participate in sharing profits with beneficial results. When this discussion originated in the Sectional Meeting, Sir Henry Fowler expressed surprise that this subject had been included in the agenda of the present Congress. He stated that Sir Josiah Stamp and he had left the Madrid Congress with the clear impression that « profit-sharing » would not

be discussed. Speaking for our own railway — it must be the same with nearly every other railway — any scheme of employees participating in profits must for a long time more remain outside the orbit of practical politics. In the present time, every addition to profits by the most exacting economies must go either to debenture holders, to shareholders or to Governments that have provided the capital expenditure. I would even go a little further and suggest that an extended scheme of profit-sharing by employees might quite easily not work in the long run to the advantage of railways generally. More especially now, but at most times, a serious difficulty which Railway Administrations have to contend against is the persistent demand of Legislatures — in other cases of shareholders — for a reduction of expenditure on maintenance and equipment. The great protection against this form of attack is the considered view of railway officials who are not prepared to undertake the responsibility of working the railway unless they are provided with an adequate budget. Profit-sharing by railway officials might easily undermine this necessary protection. The resulting starvation of maintenance and equipment would have a serious effect on railways from the point of view of the safety and comfort of the travelling public. I would, therefore, ask this Congress not to include anything in the summary of its conclusions which would convey the impression that a new remedy had been discovered for a solution of railway difficulties. I suggest that any such recommendation, based on inadequate data, would even tend towards increasing our difficulties. The summary proposed by the Section already goes far enough. I oppose the amendment proposed by the Delegate for Czechoslovakia.

Mr. Henning. — I should like to ask Mr. Ibl to consent to give up his proposal, as he only put forward this suggestion to see if Paragraph 2 includes the Czechoslovakian experiments.

We can answer in the affirmative, since it is because of the Czechoslovakian experiments that we modified the wording by inserting the words « savings effected ».

Mr. Ibl should therefore be completely satisfied, and I think it is unnecessary to make any modification in the present wording. (*Applause.*)

Mr. Ibl withdraws his amendment to summary 7.

— *The Summaries are therefore adopted without any alterations.*

Summaries.

« 1. At the base of rail transport organisation is the general organisation of all means of transport, but to enable each to cater for its own traffic, the legal and fiscal obligations should be the same for all carriers.

« This condition being fulfilled, the harmonious co-ordination desired must be sought for from the outside by effecting all possible connections between rail and other means of transport (road motors, mechanised inland water transport, aeroplanes) and also be pursued internally in each service, system and group of systems, in order to increase efficiency. It should be noted, however, that amalgamation, to which in certain cases co-ordination may lead, is limited, both as regards management and actual operation, by various circumstances.

« 2. The results which it is hoped to achieve from organisation not being

« entirely dependent upon the railways themselves, it is necessary if the efforts made are to have really satisfactory results, that the administrative obligations to which the railways are subjected and the regulations by which they are governed should be properly adapted to the existing economic conditions and the increased technical possibilities of new appliances.

« 3. The aim of modern organisation should be to carry out all mechanical work by machinery, leaving to the human being those tasks which require initiative and discernment.

« Such organisation increases the safety of the employees, both by the abolition of certain work involving special risk, and by the introduction of devices which safeguard the operatives against the consequences of human fallibility.

« Finally, the organisation of work together with the award of output premiums or shares in the general profits of the undertaking makes it possible to assure an increased remuneration to the staff.

« 4. The duties of controlling offices must be clearly defined and be simplified as much as possible, with a maximum of direct contact between each other and between them and the services under their direction so as to expedite to the utmost all matters dealt with.

« A means of ensuring inter-service contact which can be recommended is the holding of periodical meetings between officials responsible each of part of a common task.

« 5. The operative services should be enabled to collaborate in the endeavour

« to discover more economical and reliable methods. In view of the satisfactory results already obtained in this connection, it would be desirable to extend standardisation of stock as far as possible, reducing the number of types and standardising parts and the tolerances allowed therefor.

« The various workshops and establishments should be organised on the same lines, adopting the principle of responsible specialisation, whilst not curbing the initiative of the staff. The organisation of work presents a similar aspect for all railway systems, and it might be of value for the railways to interest themselves in the work of the national and international bodies in connection with scientific organisation.

« In this respect it appears that the improvements to be effected consist in the first place in the simplification of the operations themselves, and secondly in the improvement of the plant. Finally, a prime factor to be kept in mind for the efficient organisation of work is the employment of staff physically fit to perform their allotted duties, and it is for this reason that attention is drawn to the development of the psycho-technical examination already introduced by a certain number of Administrations.

« 6. The preceding measures concerning the material conditions of the organisation and preparation of work appear to require the addition of a moral factor in the shape of the confident collaboration of the staff, bringing with it a spontaneous display of collective good will, based on reciprocal esteem and equitable remuneration according to the efforts exerted and the results obtained.

« It is considered that for determining this remuneration, the premium system, already made use of, should be developed. Under this system, payment consists of two elements: one fixed and the other varying with the quality and quantity of the work done.

« The premium should first be introduced at the base, that is for the elementary operations and be so applied as to remunerate speedily the efforts of each employee and in particular the savings effected in regard to time taken and material consumed, and the general efficiency of each establishment.

« 7. From the reports it appears that no Administration strictly speaking grants participation by its staff in the profits of the undertaking.

« Certain Administrations distribute among their employees sums calculated on the general results of their working or on savings effected. Some of them consider that favourable results can be anticipated from now onwards. However, this scheme is very recent and limited to a small number of Administrations, and it is not yet possible to formulate final conclusions on this matter.

« 8. As brought out in the summaries adopted by the Congress in 1930, in connection with question XVI of its agenda, it is necessary for railway employees to be well versed in their profession and also to have a good general knowledge.

« Technical schools and educational schemes of all kinds instituted by the railways for the instruction of their employees are therefore of first class utility for the improvement of the

« railways, and their importance should
« not be underestimated.

« 9. For increasing the feeling of
« confidence and security of the staff
« it is desirable that social and welfare
« work should be extended.

« These measures, which are outside
« the scope of the actual employment,
« are aimed at maintaining the physical

« wellbeing of the employee and his fa-
« mily and assisting their material ex-
« istence right down to the small detail.
« They result in the staff being more
« devoted to their work, more relieved of
« daily cares, and can therefore be high-
« ly conducive to the attainment of im-
« proved efficiency of the railway sys-
« tems. »



QUESTION XI :

Competition between or joint working of railways and airways, or railways and roadways.

An investigation from the technical, commercial and contractual points of view.

Preliminary documents.

1st report (America, Great Britain, Dominions and Colonies, China and Japan), by Mr. C. Cox. (See *Bulletin*, May 1932, p. 729, or separate issue No. 9.)

MESSRS. F. P. VILLAMIL and E. D'OCON CORTES. (See *Bulletin*, November 1932, p. 2443, or separate issue No. 35.)

2nd report (All other countries), by

Special Reporter : Mr. E. C. Cox. (See *Bulletin*, January 1933, p. 150.)

SECTIONAL DISCUSSION.

(3rd and 4th Sections meeting jointly.)

Meeting held on the 25 January 1933.

Mr. M. MARGOT, PRESIDENT OF THE 3rd SECTION, IN THE CHAIR.

— The Meeting is opened at 11.0 a. m.

The President (in French). — Gentlemen, we will now deal with Question XI: « Competition between or joint working of railways and airways, or railways and roadways. »

The Special Reporter, Mr. Cox, has been detained in England by his duties, and so cannot give us his report himself, and I must ask you to excuse him.

On the other hand, we have the good fortune to have among us Sir Evelyn Cecil, a Director of the Southern Railway, who, I am sure, will have many interesting things to tell us.

We have just been told that the 5th Section have expressed certain wishes which we must take into account when our Sections hold their joint meeting to discuss the question of motor competition. These wishes are printed on page 7, of No. 4, of the *Daily Journal of the Session* and read as follows :

1. Public railway services — constituting an important part of the national equipment and fulfilling an economic and social function, the benefits of which, mainly of an indirect nature, generally extend to the whole national community — have the right to protection against anything that tends to ruin their work, in order to allow them to

evaluate and adapt themselves to the traffic requirements.

The advantages directly or indirectly enjoyed by other means of transport, would thus be taken into account.

2. It is the duty of the central authorities to ensure that the transport policy is such that no undertaking likely to prejudice national economic interests can be started.

It is, therefore, their duty to prevent whatever might impede the modernisation and co-ordination of the main railways and light railways and, in particular, economically unjustifiable duplication which makes profits for private interests at the expense of the general interest.

For the same reasons it is incumbent upon the Governments to take all possible steps to see that this co-ordination is accomplished, and in a manner conducive to the progress of the country as a whole.

We note these opinions and will see how far we can take them into account when drawing up our general summaries.

Mr. Jacobs, Belgian National Light Railways Co. (in French). — I should like to point out that these statements are the same as my summaries 3 and 4 on the co-ordination of methods of transport. (*Question XII.*)

The President (in French). — The fact that these opinions have been put forward by one of the Sections obliges me to read them separately so that they may be mentioned in the minutes.

I will now ask Sir Evelyn Cecil to speak.

Sir Evelyn Cecil, Permanent Commission of the Association and Southern Railway, England. — I am sorry that Mr. Cox cannot be here, but you will have read his report which is pretty fully detailed and deals ably with this very large question, which it is almost impossible to tackle adequately in the few remarks that I shall make. Some fresh circum-

stances have arisen since Mr. Cox wrote his report. But I venture to rise because Mr. Cox and I belong to the same Railway Company (the Southern Railway) and that Company has taken a good deal of trouble in recent years to deal with this very difficult question of road and rail competition. It seems to me that we Companies must put the question to the public for them definitely to answer, do they want the Railways, or do they not? If they do not, then there is an end of it. If they do, and there is no doubt that the great majority of the public do want the railways, then all the railways ask for is justice and not subsidies. We want to be fairly treated as against road competition, to be taxed fairly and not unfairly. In England a Committee has been recently set up consisting of gentlemen representing all interests concerned in this question with an impartial Chairman, Sir Arthur Salter, and they have made certain proposals to the Government which it is now for the Government to consider and act upon. But when these proposals were published, there were rather violent protestations from some of the motor interests that the proposals were not sufficiently impartial. I imagine that the same kind of thing happens in every country. We railways cannot, without limit, cut down expenses and devise economies. We do think that a definite policy ought to be set up. We do not want financial help, but we do want justice.

Again, I would add that no railway wants bitter wrangling in this matter, but friendly co-ordination with the road competition. We all ought to try to pull together and adjust each other's difficulties in the common service of road and rail competition for the public benefit.

One set of proposals which interested me very much has been made by Mr. JA-

VARY of the French Chemin de fer du Nord. He offers a general suggestion that we ought to approach this problem by dividing the railways into two categories — first, those lines which would have been constructed in any case, even if the automobile had been known at the time of their construction, and, second, those which would not have been constructed had the automobile been in use at the time.

Roughly speaking, Mr. JAVARY recommends running express trains on the main lines (and in Egypt most of them are main lines) while on the subsidiary lines he would run auto-buses. Naturally the question wants working out in detail. We could shut up some stations on the secondary lines and perhaps give more frequent services with auto-buses, which would attract the public more.

Now, as regards ourselves, we of the Southern Railway have gone into the question a good deal, and especially we have given effect to the policy of electrifying suburban lines near London. When I use the word suburban I do not mean just close to London, but about thirty miles away to towns like Guildford, to which the service was electrified two or three years ago. We have gone yet a step further this month, when we opened on the 1st of January an electric line to Brighton and Worthing from London, about fifty miles from London. We are running on that line two express trains each way daily, several more fast trains and some slower electric trains. So far as I can tell you at present, results are satisfactory. We believe the returns will be justified. More people run down to Brighton when they can go by fast electric train.

This is an interesting development as regards railroad electric work, and I have no doubt it will be followed elsewhere.

The Southern Railway aims at encouraging co-ordination of road and rail competition, and with this object in view has acquired considerable interest, though not a controlling interest, in certain private motor companies. (*Applause.*)

The President (in French). — I am sure, Gentlemen, you will wish me to thank Sir Evelyn Cecil for the excellent report he has just given us, which is full of ideas worthy to be kept before us.

Sir Evelyn Cecil has insisted on the question of equity and on the necessity for pointing out to the Governments and the public, who are not sufficiently enlightened thereon, that there is in fact a muddle which must be corrected. The railway is able in itself to fight the motor vehicle. In this connection, Sir Evelyn Cecil has mentioned a very interesting example of electrification, showing how the railway can introduce new practice. An important point that must be stressed is that the burdens are not equal and consequently, in getting out the cost price and the rates, it is not possible to have the desired equality. It is against this inequality that we should fight, and it is here that the Governments should intervene. The railways have as much right to protection as any other undertaking. We will mention this point in our summaries, as, in my opinion, it is not sufficiently stressed in those of Mr. Cox.

Sir Evelyn has also quoted the opinion of Mr. Javary, that a distinction should be made between main lines and lines that would not have been built if the motor vehicle had been invented at that time. This point deserves to be made in our summaries, with the added idea derived from road motors, as we can come into competition with rail motor cars as well with road motors. Before we go on to the general discussion, I want Mr. Bravo

of the Northern of Spain Railways to speak, as he has some observations to make.

Mr. Bravo, Northern of Spain Railways. — I think that the Meeting will be interested to hear the report of the Commission which met in Madrid in September, 1932, to study the problem of competition between the railways and road motor traffic, which report I will sum up as briefly as possible.

First of all I will give you a summary of the general considerations which served as a basis for these conclusions. All the interests concerned were represented on the Commission in question: Government, Ministry of Transport, of Finance, Railways, Road Motors, from the point of view of both goods and passenger services, as well as the Post Office. We were fortunately able to agree conclusions which were passed unanimously. The Government has taken note of the conclusions and has drafted a bill which, I believe, is to come before Parliament in February next.

This bill consists of three parts:

1. Regulation of road transport concessions;
2. Problem of the co-ordination of the different means of transport;
3. The question of the taxes.

First of all, we considered it was absolutely necessary to regulate the road concessions. All road traffic, whether for goods or passenger service, is subject to license.

The road motor services have been classified under competing, parallel, and feeder lines. A competing or parallel line is one between two towns already connected by railway, if the difference in

length between the road and railway route is not greater than 25 %. If this difference is greater than 25 %, the line is not considered to be a parallel one.

Formerly, in Spain, it was only possible to get a concession to work a parallel road motor service after the necessity for such a service had been proved to a Committee on which all the interests concerned were represented; in this way the public interest was safeguarded. But the railway had a right to set up its own road motor service when the Committee considered the service would be better if organised in this way.

We also have the right to organise combined services with other road motor services, and if the motor company refuses to work in common with the railway, the latter has the right to work the service itself, or come to an agreement with a contractor.

From the point of view of taxes, we hope we have got equality. The transport tax, imposed by the law prepared by the Government, is very high: 25 % in the case of passenger services, and 5 % on goods services; it must be the same for the competing or parallel motor services. We shall also be able to organise «block» trains for express services on holidays or when the traffic is heavy.

I think that these conclusions are such as will make for equality. We have not yet been able to deal with the road costs; there will be an equivalent tax upon motor vehicles, but the question is still in suspense. The land tax ought to be imposed on the motor vehicle just as much as it is on the railway, but this was not mentioned before the Commission to which I am referring.

I thought you would like to hear something about the decisions of this Commission, as they might possibly interest you. *(Applause.)*

The President (in French). — We will include a summary of Mr. Bravo's statement in the minutes, as it contains much interesting information.

Mr. Ibl, Ministry of Railways, Czechoslovakia, and G. R. E. M. (in French). — I think that it is my duty to tell the Meeting the essential points of the law enacted in Czechoslovakia, which was passed unanimously on the 23rd December.

The principal points are the following :

All road motor transport traffic, whether passenger or goods, periodical or otherwise, must be the object of a concession, when it is, naturally, run as an industry. The transport of private factories or that of private individuals for their own use is not in question. Motor transport undertakings organised to compete against those set up by the railway or Post Office cannot get a concession. This is consequently an exception in favour of the State Railways. Out of 250 km. (163 miles) worked, 136 (84.5 miles) are run by private organisations; the rest is managed by the State.

Goods transport which is not periodical and has no fixed route, but only works within a certain district, also comes under this system of concessions.

Private individuals who ask for a concession have to comply in all cases with certain conditions and give certain guarantees. The concession cannot be granted if there is no need for it, if the state of the roads (an important point fixed by the law) which will be used by the service in question does not allow it, and in addition if the two Administrations, Railways and Post Office, have taken advantage of their prior claim to organise road services for the concession in question.

The concession is granted for a period of 15 years.

The Railway Administration and Post Office Administration are first of all asked for their opinion by the competent authorities when the enquiry into the necessity for setting up such a service as the concession asks for, is being held.

Bulk passenger transport by road (by vehicles carrying more than 8 passengers) operated industrially, either by an individual or by the railways themselves, have to pay a tax which falls directly upon the passengers in the form of an increase in the fares. This tax is equal to that which railway passengers have to pay; it is 30 %, so that it is even higher than that enforced in Spain.

In the case of road operators carrying less than 8 passengers per vehicle, there is a tax approximately equal to the first mentioned but paid in the form of an annual tax varying with the horsepower of the motor. In the case of road goods services, the tax is only partly equal to that which falls upon the railways, and is also made up of an annual fixed tax varying with the capacity of the vehicles used for this kind of transport.

To sum up, we have more or less complete equality in the burdens in the case of passenger traffic, but only partial equality in the case of goods services. There was much lobbying in Parliament in this connection and finally the regulations decided upon were based on the average work done by motor vehicles.

This is, briefly stated, the position in Czechoslovakia. It seems to me that you can get therefrom, as from the report of our Spanish colleague, and perhaps even better, information likely to complete the discussions by practical data.

I am ready to give the Meeting any other information that may be desired. It would perhaps be as well to retain the new ideas and include them in the summaries. (*Applause.*)

The President (in French).— We thank Mr. Ibl for his interesting information.

From the legal point of view, we now have before us two interesting reports : that of Spain and that of Czechoslovakia. Our information shows that of these two legislations, one is already in force, while the other soon will be.

Has anyone else any other information of this kind to give us ?

Mr. Henning, Belgian National Railways Co. (in French).— I would like to ask delegates who represent countries where there is legislation applying to motor transport, if they have any laws which apply to transport by individual motor lorries.

In Belgium there are 60 000 privately-owned lorries, and only 9 000 of these belong to transport undertakings. Now the private individual who transports by motor finished products or goods of any other kind which were formerly sent by rail, does just as much harm to the general economy as the road haulier. Are there any laws about this ?

Mr. Ibl (in French).— Just now I only mentioned the essential points in the legislation we now have in force, but this question also is regulated. There is a tax on motors which is intended to supply funds for repairing the roads. The individual lorries have to pay a supplementary tax, but a smaller one than that on transport undertakings.

The President (in French).— Would Mr. Bravo be good enough to tell us if in the proposed Spanish law there are any regulations like those Mr. Henning has mentioned ?

Mr. Bravo (in French).— There are

no special taxes on individual lorries in Spain. These latter only pay the taxes which fall on all motor vehicles without discrimination.

The President (in French).— The answer to Mr. Henning's question is consequently as follows : no such provision is made in the Spanish law, while in Czechoslovakia there is, in addition to the usual tax for the right to use the road, a special tax on privately-owned lorries.

Mr. Ibl (in French).— A distinction must be made between transport by the motors belonging to private firms, for example those of a trader, and those of a road haulier, who carries out transport for a third party. There are also undertakings with regular traffic over fixed routes; in the case of the latter, the necessary arrangements are made. On the other hand, individuals responsible for an irregular traffic stream have to apply for a concession and have to pay a tax equal to that imposed on the railways. In the case of the individuals whose vehicles are used to transport their raw materials and their finished products, no concession is required, but they have to pay a fixed annual tax intended to prevent abuse.

Mr. Goonetilleke, Ceylon Government Railway.— Speaking with reference to countries where road transport is almost entirely in the hands of buses and lorries driven by their respective owners, I shall be very grateful for any information in regard to countries that have legislation in force : a) restricting the numbers of motor vehicles on particular routes; b) fixing maximum working hours for « owner-drivers »; c) enforcement of time tables and fares schedules.

The President (in French). — In France the motor services are controlled; there is also a law which limits the period of work. In practice this law is not enforced. The motor has complete liberty as regards its timetables, rates, choice of traffic, etc., nor is it subject to any regulation as to the working hours of its drivers.

Mr. Ibl (in French). — In Czechoslovakia, the railways have facilities in the way of extending the working hours according to the needs of the service. Theoretically this advantage is not grant-

ed to the men employed on motor omnibuses.

The question is not yet, however, completely settled. An endeavour is being made to make things equal, so that road transport can have the same facilities as transport by rail.

The President (in French). — I think that we have now made a good preliminary study of this question. As it is already late, I propose we end this Meeting and meet here again tomorrow morning at 9.30 a.m. (*Agreed.*)

— The meeting ends at 12.10.

Meeting held on the 26 January (morning).

(3rd and 4th Section meeting jointly.)

Mr. M. MARGOT, PRESIDENT OF THE 3rd SECTION, IN THE CHAIR.

— The Meeting begins at 9.55.

The President (in French). — Gentlemen, you will have read in today's issue of the *Daily Journal of the Session* a summary of the discussions we had at our Meeting yesterday, when very interesting information was laid before us by Sir Evelyn Cecil, Mr. Bravo and Mr. Ibl, and at which we heard the question raised by Mr. Goonetilleke, the representative of the Ceylon Government Railway.

We will continue the discussion. Four other speakers have sent in their names, and I will ask Mr. Estèves to begin.

Mr. Estèves, Portuguese Railways (in French). — The Portuguese Government also has studied the question of competition between transport by railway and by road motor. It has nominated a commission to study the co-ordination of

transport, which has already adopted certain general principles which I think the Meeting would be interested to hear of; these principles are now being considered so that the regulations may be carefully drawn up.

First of all, we have public motor service undertakings which are submitted to a contract including an authorisation from the Government, with very precise obligations laid down concerning the minimum duration of the concession, the security of the undertaking and, in general, all those conditions needed to assure regular and safe working.

Motor transport services requiring a concession are divided into two classes according to their situation in relation to railway lines already in existence.

1st group : Motor transport services in

competition with the railway — these are those which begin and end in an area within 10 km. (6 miles) on each side of a railway that is still being operated. This class also includes all motor transport services the mileage of which is greater than 100 km. (62 miles).

In the case of lines which fall within this class, no special protection is given by the State, and they have to submit, as far as possible, to the same conditions as those under which the railway is operated.

2nd group: Motor transport services acting as feeders to the railway. These are the services which are not in competition with the railway and carry out transport in regions which are not directly served by a railway. In the case of such lines, the conditions under which a concession is granted are more favourable, and in certain cases it is even possible for them to get a subsidy from the State.

In fact, we have based our practice on the principle that we must profit by the progress made in modern methods of transport in order to complete the existing systems, and in this way avoid destroying what is in fact an important part of the national assets.

The President. — Is this projected legislation?

Mr. Esteves. — It is a bill drafted by the Commission and which will be adopted by the Government.

The President. — Mr. Ottone will now speak.

Mr. Ottone, Confederazione Nazionale Fascista dei Trasporti terrestri e delle Navigazione interna, Italy (in French). — I should like to give you some inform-

ation about a decree recently published by the Italian Government, in which questions of competition, the conditions under which public services, secondary railways — the main lines being operated by the State — are to be worked, according to a general plan and new economic principles.

The Italian Government considers that Regional Unions should be established to operate all the means of transport of the region. In this way, stronger organisations would be formed, which would be able to co-ordinate all the methods of transport of the different regions, give up those which appear to be useless and develop to the utmost those best suited to meet the general requirements. We do not think that there are any insurmountable difficulties in the way of the application of this scheme, and we are sure that our Government will see its way to the application of this plan.

Another article of the decree in question deals with lines with very little traffic, which are no longer able to pay their way. These will be authorised to give up their railway services and set up motor services. This article also lays down that the subsidy intended for the operation of railway services can be used partly or entirely for motor services.

Finally, a third article grants us, experimentally, for a period of one year, a certain liberty of action as regards the rates. During the present year we may consequently reduce the rates and grant certain facilities without asking for the consent of the Government before doing so.

This measure is a great step forward in giving us the liberty of action for which we have long been asking. None of us wish to see government control completely abolished; such control is a

necessity in order to safeguard the interests of the public.

But there is control and control. We do not want the control over certain offices to be turned into a kind of management which modifies the terms of the concession and is a source of danger to us.

We hope that the experiments which I have just mentioned will succeed, and that is why I have called the attention of the Meeting to them.

The President (in French).— We have just heard two speakers who have given us some supplementary information about the tendency of new legislation. Consequently, we have now heard four very interesting statements, in addition to that of Sir Eveyne Cecil who called our attention to the need for inciting the States to give us a more just distribution of the burdens borne by transport undertakings.

I will now ask Mr. Level to address the Meeting.

Mr. Level, Compagnie des Voies ferrées d'intérêt local, France (in French).— Gentlemen, we are gathered here to discuss a question called competition or co-ordination of transport, and, as we have already noticed, it is common to all Congresses to have their questions drawn up and prepared several years in advance so that, at the time they are actually discussed, they are, as is the case today, already rather out of date.

I am sure that if it had been prepared recently the question would have been worded as follows: « Liberty or co-ordination of transports. » This would have been much better.

Liberty! Obviously we are all in favour of liberty, but this in itself is only a word, and absolute liberty means anarchy. What we need is an organised liber-

ty, such as should be found in all civilised countries. It is certain that what we have before us today is a real anarchy in transportation. If we consider on the other hand co-ordination, it is to be regretted that recently, when using the French language which contains such word as « coordination, cooperation, collaboration », these three words have been used indiscriminately. Collaboration! We are all ready to collaborate. We ask for nothing better than to be allowed to collaborate with the motorists, that is to say to study with them the questions which interest us both. We ask for nothing better than to co-operate with them, to work together with them. But for this, co-ordination is needed, that is to say something which we, operators, are unable to effect ourselves, and which is urgently needed in order to put a little order where today there is nothing but disorder.

Only the Governments are qualified to obtain such co-ordination. They can and should, by taking the necessary steps, in conformity with the general interest, help us; I was going to say protect us, and I think that the present Congress will want to express a wish to this effect.

In any case, if they cannot give us protection, they should defend their concession holders in every way. When we signed our concession contracts we were given certain rights at the same time as we assumed certain burdens.

The burdens continue to weigh heavily upon us. Surely it is time that our rights also were respected.

Yesterday, Sir Evelyn Cecil very clearly expressed a point of view that you all must hold. He asked if the railways should continue to exist, or if they should be done away with? There you have the whole question in a nutshell. If they

are to be done away with, there is nothing to be done in the matter. If on the contrary Governments and public opinion favour the continued existence of the railways, they must take the steps necessary in order to assure their viability.

I think the question is very clearly enunciated in this fashion. However, it is perhaps a little too general in scope, seeing that it is possible that in a given region certain railway lines may be considered, with or without reason, as unjustified whereas still others can be saved by appropriate measures, such as those we considered yesterday: by the use of rail motor coaches, or even, in certain countries, by changing the classification of certain lines which are called lines of general interest whereas in reality they are secondary lines, of local interest, and such an alteration in their class may be sufficient to save and maintain them because of the resulting operating economies.

Consequently, I think we should all agree in insisting very formally and very strongly that our Governments should give us effectively, in the near future the co-ordination we desire, and in this spirit I want to ask the Bureau, no matter what summaries be presented after this, to recommend to the Sections united together to add their votes to the wishes expressed by the 5th Section, and which you read yesterday. I think that these wishes, which are briefly worded and include the idea of protection, or of defence if you prefer, of the interests confided to us, should be included in the question with which we are dealing today, and it was for this reason that the 5th Section asked us to defer it, in spite of the fact that we had already adopted it, to the present joint meeting of the Sections.

We hope therefore that you will join in this wish.

The President (in French). — The Bureau will note the remarks made by Mr. Level so as to take them into account in the summaries which will be put before you this afternoon.

Mr. Henning now wishes to make a remark.

Mr. Henning (in French). — The question of competition between motor and railway has already been dealt with in three Sections and from the discussions which took place we might get the impression that the railway only improves its operating methods and increases the facilities it offers passengers and industry under the pressure of motor competition.

I think we should be careful to avoid giving the public such a false impression. It is not because of motor competition, but because of new requirements that we make the different alterations in question.

Apart from this, I should also like to draw the attention of the Meeting to a consideration of another kind: in hardly any country do the road motor undertakings bother to obey the police regulations about road vehicles, particularly as concerns the weight of the vehicles and their speed. With us the load of lorries is not allowed to exceed 10 tons without special permission. However, it is a well-known fact that the lorries transport as much as 15 tons of goods without including the weight of the vehicle. Now you can imagine the effect of such transports on the roads. As to speed, it is known that lorries carrying 10 tons of goods are a real danger. They only take one day to cover the distance between Amsterdam and Paris, so we may wonder

how they can possibly respect the 8-hour working day.

Goods transported by road get through the customs at the frontiers much quicker than goods transported by rail.

I think that these remarks might be included in our summaries.

The President (in French). — We will take all your remarks into account in drawing up our summaries, in order to avoid giving the impression that we have only brought our methods up to date under the influence of motor competition.

Mr. Cancela de Abreu, State Railways in the Portuguese Colonies (in French). — I think that the question we are now discussing is one of the most important, if not the most important, on the agenda of the present Session. It should therefore receive our closest and most profound attention. The problem of competition between transport by railway and by road, which is met everywhere to an extraordinary extent, not only threatens the railway undertakings and administrations, but goes even further and attacks the national economy. The enemy before us, who fights us without either nobleness or loyalty, forces us to take exceptional measures; but the most efficacious of these are beyond our control and we have to ask the Government to take them for us.

I have read Mr. Cox's special report very carefully and I take this opportunity of congratulating him upon it. I think, however, that he has been rather optimistic in his general summaries. It is true, and several delegates have just told us so, that in certain countries there are laws, or laws are in preparation to solve the problem. But I think that these measures will still be insufficient to solve

the question; on the other hand in some other countries nothing at all has been done up to the present.

In my opinion, the summaries of Report No. 2, by Messrs Villamil and d'Ocon Cortès, better meet the general circumstances. Moreover, the opinion expressed by the 5th Section, read to us yesterday, more fully meets the question such as it arises today. The idea they express is very apposite and we should make it our object likewise.

Under these conditions, seeing that it is necessary to make some more concrete affirmations on this matter, I suggest that the present Meeting should adopt as its summaries the opinions expressed by the 5th Section.

The President. — Unless subsequently amended !

Mr. Cancela de Abreu (in French). — Obviously, Mr. President, in this connection I should like to take as our first summary the first wish of the 5th Section, with the modification I am going to suggest, and as our second summary the second wish; then we can take the first paragraph of Mr. Cox's summaries as our third resolution, and the last paragraph as our fourth resolution.

I should like to remark at this point that the original text of Mr. Jacob's report has been altered by putting « the public railway services... have the right to be *defended*... » instead of « ... have the right to protection... »

I certainly do not think that the railways should ask for protection; all that is needed is that they should be defended with justice : i. e. equality of conditions with the road transport undertakings. Consequently I suggest that we should adopt the following supplementary paragraph to the 5th Section's first wish :

« It would be well if at least such defence consisted either in a reduction of the taxes and other charges which weigh upon the railway, or in an increase on those upon motor transport, so that the working of the two systems be brought by the laws of every country under just and equitable conditions, i. e. so that competition may occur under real and properly regulated equality. »

The President (in French). — I would like to point out to Mr. Cancela de Abreu that if Mr. Cox has not been more definite in his summaries, particularly with regard to regulation, it is because, as Sir Eveyn Cecil pointed out yesterday, the question has greatly developed since he made his report. It must also be noted that all the information which we have received shows that the laws we have been told about are of recent date, as in Czechoslovakia for example, where they date from December 1932. In other countries such laws are still only projected or mere decrees, and it is therefore natural that Mr. Cox should not have taken any definite position upon this idea which today's discussions has brought out.

Dr. Dormmüller, the General Manager of the Reichsbahn, will now speak.

Dr. Dormmüller, Permanent Commission of the Association and General Manager of the Deutsche Reichsbahn (in German). — I can only speak for the main line railways, that is to say for the State Railways, and for the great companies who serve a large part of the country.

In examining this question, we must obviously take into account other conditions than when it is a question of competition between the road motor and the secondary railways.

The main line railways have only been

able to fulfil their important part in the general economy because they have had a monopoly. It was this monopoly which enabled the railways to transport foodstuffs and raw materials at very reduced rates, thanks to the good receipts they got from the high taxes on the higher classes of goods. In our case, in Germany, we can estimate that 30 % of our receipts come from the highly rated traffic, and the lower classes of goods benefit by the profits obtained from this 30 %. We do our best to carry out transport more cheaply over longer distances and to apply reduced rates to foodstuffs and raw materials.

Now the road motor has made a breach in this rates system which we had built up. By its lower rates, it has taken away the railways' profits, and consequently makes it impossible for them to offer any more, for the benefit of the general economy, reduced rates for foodstuffs and raw materials. It was all the easier for it to disorganise things in this disastrous fashion that we carry some goods at rates 10 times higher than those of the lower classes of goods. Consequently the motor had only to fix its rates a little lower than this rate to upset the whole of the goods transport services in the higher classes of goods which made it possible to transport foodstuffs at low rates.

Now we must try to find a remedy for this situation. All the remedies which have been suggested here are insufficient. We are no longer able to re-establish the conditions of former times, i. e. transport of foodstuffs at reduced rates, thanks to having a monopoly.

In order to stop motor competition, it would be necessary to burden it with very heavy taxes; only in this way could it be forced to apply rates equal to those

charged by the railway. Now this is quite impossible.

We have, therefore, had recourse to the following method. We asked the Government to issue a decree forbidding the owners of motor lorries to transport at lower rates than those charged by the railways. Here again what we expected happened. It is impossible to control these road undertakings. The regulation that the motor cannot carry goods at lower rates than the railway rates exists on paper. It has been so for the last 15 months, but as far as we are concerned with absolutely no results.

Consequently it is not possible to fight the road by increasing the taxes, and laws against it are of no avail either. Nor is it possible to come to agreements with the owners of road motor vehicles. These people pretend to observe the regulations, but in actual fact elude them, while the State Railways keep within the law.

It has also been said that it would be possible to make competition less dangerous if the road motor, like the railway, were obliged to run at fixed hours and even serve those districts where transport does not pay, as both sides should be treated alike. But it is not possible to make the motor work where it earns no profits. Only the railway can be asked to make such a sacrifice.

If we decided to fight and reduce our rates for the higher classes of goods, the consequence would be to increase the anarchy. First of all we should lose enormous sums, and secondly we should be obliged to raise the rates for food-stuffs and raw materials, so that these latter would go to the waterways. You see we have to choose between the frying pan and the fire.

What I have just said is already familiar to you all. I dwelt on it a little so

that you may understand what I am going to say next. I am speaking of a fact that the public does not take into account.

I venture to prophesy that in a few years time the disorder will have become so great that we shall have to ask the authorities to amalgamate all the transport undertakings.

Just as in the past the Post Office has taken to itself the telephone system and wireless, so the railway should undertake the whole of the transport services. But the two systems can only be amalgamated if they are part of a single organisation, either because the State has granted monopolies, or because they are operated by the State itself.

I should like to point out that at the present time we are only at the beginning of the development of the motor. Even what we see today in America is not the end.

But today the economic conditions are so bad that neither the motor nor the railway are really profitable. This would be the time to combine all the different motor transport companies and introduce a monopoly.

The railways could become once again benefactors as regards the general economy and would draw up their rates in common with the motor.

There is no question of the companies wanting to make large profits, or that the State ought to make much gain; all that we want is that the country should have its transport services assured at the lowest possible rate.

The President (in French). — Gentlemen, I suggest that we should end for the time being with this interesting statement from Dr. Dormmüller, and continue the discussions this afternoon at 3 o'clock.

Mr. Jourdain, Chemins de fer secondaires du Nord-Est, France (in French).

— Mr. President, in view of the importance of the discussion that is going to take place on the summaries, we have

drawn up some resolutions. Could not these be read out?

The President. — We will consider the text of the summaries this afternoon.

— The Meeting adjourned at 11.30.

Meeting held on the 26 January (afternoon).

(3rd and 4th Sections meeting jointly).

Mr. M. MARGOT, PRESIDENT OF THE 3rd SECTION, IN THE CHAIR.

— The Meeting is opened at 3.15 p.m.

The President (in French). — Gentlemen, this morning, when we had finished the discussions, I asked you to be prepared to come to the summaries this afternoon.

This morning's Meeting ended with the masterly speech of Dr. Dorpmüller, General Manager of the Deutsche Reichsbahn, foretelling a monopoly. This formula, which is a State formula, certainly has a more absolute character than the other formulæ suggested in the course of the discussions. In fact the formulæ which were mentioned were generally directed rather towards the concession system. I am afraid, however, that if we include the idea of State monopoly in the summaries, this will contradict the opinions already expressed, which are based on the idea of concessions.

What must be taken into account is, in fact, that we are unanimous in admitting the necessity for Government intervention. But it is also certain that the regulations must vary with the circumstances of each country. It is this much more general direction that we must aim

at, and certain delegates have been good enough to draw up some proposed summaries with this end in view, upon which we can reopen the discussion, basing it upon a definite text. This text has been drawn up in French. The English and German translations will be made at once.

I am going to ask one of the members who drew up these proposed summaries to read them to us in French, after which we will have the English and German translations read out.

Dr. Dorpmüller (in German). — I expected an objection of this sort to be made. I did not blind myself to the fact. However, I persist in my opinion that if these gentlemen find difficulties in their own countries, I myself will also find it difficult to apply in practice the ideas expressed.

Nonetheless, like you, I am of the opinion that we should endeavour to agree unanimously upon the wording of the summaries.

However, the one thing I am sure about is that the railways' deficit will oblige us to consider the idea of a monopoly in the near future.

The President (in French). — I am much obliged to the General Manager of the Deutsche Reichsbahn for what he has just said, and in particular for the broadmindedness which makes him give his support to the solution of including the concession system in the summaries.

Having said this, I think we may now pass on to examining the text which has been announced.

Mr. Jourdain (in French). — As I told you this morning, some of the members met together at the end of the last Meeting in order to draw up the projected resolution which I will read to you.

We have begun by a somewhat lengthy statement on the situation, in which we have endeavoured to include nearly all the principal remarks made yesterday and this morning. This statement is followed by a more concrete wish, which is only a few lines long, but which is inspired by the wording adopted by the 5th Section.

The representatives of the 5th Section would have been very pleased to see their resolutions accepted, and, for my part, I must say I should have liked to have seen them adopted as they were, seeing that they are the same as those come to at the Congress of the International Union of Tramways, Local Railways and Public Motor Transport, held at The Hague six months ago.

Our colleagues asked us to make a few modifications in the text suggested by the 5th Section. We recognise the fact that since then the situation has developed still further. I hope the Meeting will be in agreement with the following text :

I. — Railways and road.

1. The question of automobile competition, which was made the subject of very serious consideration during the Madrid Con-

gress, is still far from receiving the solutions recommended in the summary of 1930. These must, therefore, be maintained in their entirety inasmuch as, judging from the reports produced at the present Session, the development of goods transport has been much increased by the improvement and the extension of the motor lorry. The consequences are as troublesome to the great Systems as to the Railways of local interest.

2. In every country the railways have been seriously handicapped in their efforts to preserve and increase their traffic by the inequality of the conditions governing transport by road and by rail. Since the commencement of their existence, the railways have been the object of much legislation on the subject of precautions to be taken in the interests of safety, conditions of transport, the right to establish rates and the publication of tariffs. This legislation originated from the fact that the railways enjoyed a virtual monopoly, and that is was, therefore, necessary to protect the public in different ways.

3. The result is that the railways, which have heavy expenses — especially for the maintenance and improvement of the permanent way — are subject as well to taxation, particularly heavy in certain countries, and to heavy obligations in respect of transport and of safety, whereas the automobile undertakings have every liberty in fixing their schedules and their rates as well as in their choice of traffic. They use this liberty to take the cream off the traffic normally remunerative to the railways, which leads to the inevitable consequence of obliging the latter, in order to save disaster, to increase, to the great prejudice of the general economy, the tariffs now in force upon heavy merchandise or goods of first necessity.

The road motor transport undertakings escape, in addition, in great part the expenses and obligations of the railways, often even in regard to the conditions of remuneration and work of their personnel.

However, the railway has, like every other undertaking, right to a fair distribution of obligations and expenses. If this

idea of equity cannot be resolved in the same manner everywhere, the tendency must manifest itself in each country according to its own conditions.

4. The statements presented to the Congress indicate a certain number of measures adopted in different countries with the object of establishing a certain equality between the two methods of transport.

Since, measures of the same nature have been taken in some countries, or are on the verge of being put into force in others.

It is certain that unregulated competition between forms of surface transport is extremely prejudicial and causes economic losses, and that the low cost of certain types of road transport is more apparent than real, in view of the fact that the high cost of the roads is not equitably supported by the road transport, but recoils on the public. In other words, the road transport industry in this way is subsidised by the rate-payers.

5. First of all, it is necessary that the State should lighten the regulations imposed on the railways in order to enable them to modernize their methods, with a view to giving the public the same satisfaction as the automobile, without their being obliged to have recourse to a tariff war which would be disastrous for the general economy.

6. The condemnation of such a tariff policy brings logically in its train measures affecting public transport by automobile. To avoid competition, which is prejudicial to the national general economy, to maintain public automobile transport in the form of a normal use of the road, to regulate its organisation and circulation as the execution of a public service requires, these are measures that are not contrary to progress and which would conciliate the interests concerned if direct understandings could usefully intervene between the railways and public road transport undertakings.

Co-ordination would leave each method of transport to fulfil its own role for the good of the public and the aim of regulation would be purely policing. But such direct understandings are generally made difficult

by the dissemination of road transport and its particularism.

The railways have notwithstanding endeavoured in every way to co-ordinate the two methods of transport. In countries like Great Britain, where the railway companies did not possess general powers for operating road services, these powers have now been granted.

In a general manner, it may be said that, whether by means of road transport services run directly by the railways, or by agreements with the automobile lines, the railways have endeavoured to co-ordinate the two services so that:

a) The one becomes an affluent of the other, especially in the case of passenger transport;

b) Transport of goods from door to door may be effected by the creation of well organised collection and delivery services.

7. The railways have not ceased to take measures for modernising their organisation.

They have accelerated their passenger services. They have often themselves utilised automobiles. They have gone into the question of general employment of rail motor cars, which are economical, rapid and comfortable means of transport.

Some railways have not hesitated to go to heavy expenses in electrifying lines with heavy traffic, giving them an up-to-date signalling.

As regards the good services, the railways have also remarkably accelerated the rapidity of transport and have reduced the period for delivery. They have organised door to door services.

They have had recourse to the use of containers.

They have given to users the facility of warehousing goods in the goods stations.

8. To sum up, it is necessary that the railways continue the efforts they have made to still further improve their working methods, but it is necessary that they also receive from their Governments the help and guarantee necessary in consideration of the general interest.

Now here are the general summaries. They are all contained in a few lines :

« For this purpose, the Congress records the following resolution :

« The public service by rail, constituting an important utility, fulfilling an economic and social role, the advantages of which extend to all classes of the public, have the right to obtain from their Governments equality of legal and administrative regime for all methods of transport, as well as of the fiscal and other charges which they bear.

« It is, furthermore, incumbent on the Governments to ensure that means of transport shall be co-ordinated and to employ every possible means so that this co-ordination be realised without further delay, in a spirit of progress for the whole of the country. »

It seems to us that everything said this morning has been taken into account.

— *The English, and German texts are then read.*

The President (in French). — Dr. Dorpmüller has made a suggestion to me, which I will now put before the Section. We should, he said, read the French text slowly, paragraph by paragraph, and at the end of each paragraph read the translation into the two other languages of the corresponding text. (*Agreed.*)

So we will now take *point 1*.

It has been pointed out to me that an alteration should be made in this paragraph. It says : « ... the development of goods transport has much increased... ». We should add the words « by road » and say : « ... the development of goods transport by road has much increased, etc... » I think we will all agree to making this addition. (*Agreed.*)

We will now go on to *paragraph 2*.

Mr. Henning (in French). — The laws under which we operate have their origin in the monopoly the railway possessed. I should like to alter the wording of Paragraph 2 and say : « This legislation was justified at its origin by the theory that the railways enjoyed a virtual monopoly, and that it was, therefore, necessary to protect the public in different ways; it continues to be so for the consideration that the railways should serve the general interest. »

The President. — If no objections are put forward, we will adopt paragraph 2 with this modification. (*Agreed.*)

We will now go on to *Paragraph 3*. Are there any remarks ?

Mr. Henning (in French). — Perhaps we might complete this by saying : « It is seen, moreover, that in certain countries the recent laws on transport are not obeyed by the road undertakings. In addition, road transport services have facilities for passing through the customs, not given to the railways. »

The President. — This was mentioned this morning.

Mr. Jourdain (in French). — Is not this an attack on the motors, the thing we have tried to avoid in our text ?

Mr. Henning (in French). — Might we not say : « It is noted, moreover, in certain countries, that the laws on the policing of the roads as well as laws on conditions of service are not respected by the road transport undertakings unless such infractions are punished by the competent authorities. In addition, the road transport undertakings frequently

have facilities for passing through the customs at frontiers, facilities which are not given to the railway. »

The President. — I can confirm that what Mr. Henning has mentioned actually does exist; I know some scandalous examples.

Mr. Level (in French). — I do not want you to insist on this. This is a particular case, and it seems to me that it weakens the general point of view which we have in mind. It says further on that we ask for : « equality of legal and administrative regime for all methods of transport. » This is definite. By quoting particular cases, we weaken the general regulations which we are asking for for everyone. If Mr. Henning would be content with our wording, I really think it would be best.

Mr. Goonetilleke. — I support Mr. Henning's suggestion. We ought to take every possible step to strengthen our case. At the present time competition between rail and road is unfair. In the case of road transport, the load limits are exceeded, and there are a whole series of cases showing that road motor transport is in a privileged position because of the facility with which it can infringe the regulations.

For my part, I will support every proposal that seems likely to strengthen our text.

Sir Evelyn Cecil. — I would suggest that Mr. Henning's proposition be adopted; it might be inserted in a few words at the end of the 2nd paragraph of clause 3, rather than in clause 4, to which it fits less well.

The President (in French). — We might very well include this in point 3

where the situation of the two methods of transport is reported. I would like Mr. Henning to put his idea into a formula which we can develop.

If the Meeting wants to retain Mr. Henning's idea, we can leave it to the Bureau to draw up the wording. (*Agreed.*)

Mr. de la Torre y Eguia, Ministry of the Fomento, Spain (in French). — I should like to remark that it is not only questions of fairness nor aspects of the legislation, so well brought out in the proposed text, with which we are concerned. There are other circumstances which vary from one country to another. In this connection, I can say that Spain is in quite a different situation to that of other countries, because the railway companies have been given, by the State, privileges which are very much to their benefit. I can give you figures. When it is a question, as in the case of the Spanish Government, of a subsidy or grant to the companies of the order of 1 800 million pesetas, it is not possible to ask for equality of treatment with the motor. This cannot be done.

The President (in French). — This remark strengthens the last paragraph of Summary 3 in which it is said : « However, the railway has, like every other undertaking, right to a fair distribution of obligations and expenses. If this idea of equity cannot be resolved in the same manner everywhere, the tendency must manifest itself in each country according to its own conditions. »

We will complete the second paragraph and strengthen the third by adding the necessary modifications. I suggest that we should leave it to the Secretariat to draw up the text which will be put before you later on.

Summaries 4, 5 and 6. — These paragraphs were adopted without question.

Mr. Mellini, President of the 5th Section (in French). — In summaries 5, 6 and 7, I find the expressions : « automobile, public automobile transport and public road transport undertakings... » I should like to know if those who drew up the text used these different expressions to describe a single state of affairs because, as far as Italy is concerned, for example, the summaries are rather confusing. The road carriers are as a rule all the people who carry out road transport. The public motor transport undertakings may, as far as we are

concerned, be carried out by taxis or motor cars from garages. The carrying out of a public service is another matter. If these expressions refer to different things, we must make it quite clear what we exactly mean. As far as our legislation is concerned it is necessary in every case to clear up this point.

— After a short discussion it is decided, on the advice of the President, to re-examine in this connection summaries 4, 5 and 6, in order to prevent any misunderstanding.

— Mr. Margot then gave place to Mr. Mellini, the President of the 5th Section.

PRESIDENCY OF MR. MELLINI, PRESIDENT OF THE 5th SECTION.

The President. — We will now continue the discussion.

Mr. de la Torre y Eguia (in French). — In connection with Summary 6, I should like to make another small observation; it says : « To avoid competition prejudicial to the national general economy... » In my opinion this text is too categorical : we cannot, as soon as there is any competition qualify it by the word prejudicial. I suggest the sentence « to avoid cases of competition which would prove or would have proved prejudicial... »

The President (in French). — We cannot wait until competition has taken place to know if it is going to be prejudicial; we have to decide whether it will be so beforehand and, in this case, reject the request.

Mr. Level (in French). — Instead of : « To avoid competition which is prejudicial... » we might say : « To avoid the

cases of competition prejudicial... » In this way everyone would be satisfied.

Mr. de la Torre y Eguia. — I agree.

The President (in French). — If everyone agrees we will go on to Summary 7. I should like to make a slight alteration thereto. It says : « They have gone into the question of general employment of rail motor cars, which are economical, rapid and comfortable means of transport. » It looks as though we thought the trains were not comfortable. Could we not say : « particularly comfortable. »

Mr. Level (in French). — Let us say : « ... rail motor cars, which constitute, in some cases, economical, rapid and comfortable means of transport. »

The President. — I think everyone would agree to this.

— *The modification was agreed to.*

Are there any other remarks on the the summary which has just been read ?

Mr. Avery, North Western Railway, India. — I am not quite sure whether the railways have reduced their fares elsewhere. On the North Western railways we have introduced cheap single journey fares and we have found that in certain cases the earnings increased up to 250 %.

The President (in French). — This question has been dealt with by the 5th Section when rail motor coaches were discussed generally together with increased services.

Mr. Jourdain (in French). — These are particular cases which it is very difficult to introduce into the summaries.

The President (in French). — Does Mr. Avery insist on having his remark mentioned in the summaries ?

Mr. Avery. — I would like to suggest that just these words « that the railways have reduced their fares » be mentioned.

The President (in French). — We would then come to the position of competition...

Mr. Level (in French). — ... competition by means of the rates, which we have condemned in another paragraph.

Dr. Dorpmüller (in German). — I should like to raise my voice in warning. I want to ask you to be very cautious as regards the reduction of the rates. There are cases in which such a reduction leads, not to an increase in the receipts, but to a decrease. In Germany, the reduction of the rates for goods and passenger transport has led to a considerable loss.

Mr. Avery. — I did not mean to advise that railway fares should be reduced generally, but only on short sections. In actual experience we have found that the earnings have increased 250 % on those lines that are off the main line — on suburban lines.

Sir Evelyn Cecil. — I cannot help feeling that this is really a specific case which can hardly be included in a more general statement, such as we are dealing with here.

The President (in French). — If Mr. Avery likes, we can vote on his suggestion. But at a Congress it is better to reach a solution to which everyone can agree. Consequently I suggest that he should withdraw his suggestion which will be mentioned in the minutes of the Meeting.

Mr. Avery. — I really mentioned that point to be included in the general statement, but if the president thinks it should not be included; I raise no objections.

The President. — Summary 7 is therefore approved, and we come to Summary 8.

Mr. de Spirlet, Nord Railway, Belgian lines (in French). — I wonder whether it would not be better to say in summary 8 : « improving » instead of « modernising ». By using the word « modernising » we might suggest that we employ out of date methods.

Mr. Level (in French). — The word « improving » would be worse. It would perhaps be better to say : « ... for still further improving... »

The President (in French). — I am sure we all agree to this. (*Agreed*). So,

now we come to the last part, to the general summary. Are there any remarks?

Mr. Chiossi, Italian State Railways (in French). — I have not got the text before me, but I think I remember a sentence which says that the railways are an important part of the national assets. If our economic value should be destroyed, we would no longer have any reason to exist. I think it would be well to say that we still represent a vital part and that our assets have an economic value. It is only a modification in the wording that I am suggesting.

Mr. Level (in French). — We might say: « The public service by rail constituting a national utility which has preserved its value... ». The economic role comes second.

The President. — Can we not leave it to the Bureau to draw up the proper wording?

PRESIDENCY OF Mr. M. MARGOT.

The President (in French). — We can, therefore, consider the French text of the Summaries as agreed. We will go on to the translations at once, taking into account the modifications proposed and adopted, and then our work will be ended.

We must not end the Meeting without thanking the Special Reporter and all those who have given us assistance, particularly the translator, Mr. Velleman,

Mr. Chiossi. — Agreed.

The President (in French). — Paragraph 8, with the modifications just suggested, is therefore approved.

So now we come to the last point relating to the *Railways and Airways*, worded as follows:

« Air transport, in its present state, does not present the same aspect of competition.

« In a general way, the aeroplane constitutes, for very long distances, such progress that the railways can only continue to facilitate working together with the aeroplane.

« There are, however, certain cases in which the State, by reason of subsidies granted to aeroplane services, should intervene in fixing the charges for transport, to avoid the competition offered to the railways. »

— Adopted.

(Mr. Margot returns and resumes his place as President.)

whose presence among us we have been fortunate enough to have on several occasions. (*Applause.*)

Mr. Level (in French). — I also propose a vote of thanks to the two presidents for their masterly and impartial fashion in which they have led the discussions. (*Applause.*)

— The Meeting is closed at 5.30 p. m.

DISCUSSION AT THE PLENARY MEETING

held on the 30 January 1933.

H. E. IBRAHIM FAHMY KERIM PASHA IN THE CHAIR.

GENERAL SECRETARIES : MESSRS. P. GHILAIN, YOUSSEF RISGALLAH BEY,

Dr. I. G. LEVI and FOUAD HASSIB BEY.

ASSISTANT GENERAL SECRETARIES : Sir HENRY FOWLER and Mr. P. WOLF.

Mr. Ghilain, *General Secretary*. — We now come to the summaries of Question XI, which have been published in today's issue of the *Daily Journal of the Session*.

— *These summaries are read out.*

The President. — Are there any objections as regards the text of these summaries.

Mr. Margot, Permanent Commission of the Association and Paris Lyons & Mediterranean Railway (in French). — Mr. President, I wish to make an observation on the important question of road motor competition, which has been dealt with by several sections and discussed at great length.

The summaries which have just been read give a picture of the trouble motor transport has caused in every country.

It is remarkable to note that the railways are unanimous in saying that the present anarchical situation will only end when the Governments intervene, so that the discussions have chiefly consisted of statements by delegates who were able to give interesting information about the laws already in force.

In only one country, Czechoslovakia, has anything actually been done, and some delegates have observed that it

would be a good thing if the different Railway Administrations were informed of the measures that will be taken, in the very near future perhaps, in various countries.

We hope that the Governments will not lose too much time in deciding to do something, and we also wonder whether the Permanent Commission of the Congress could not get, from the Railway Administrations of all countries, periodical information which could be summed up at the end of each year? This should be done until the next Session of the Congress.

Section III expressed the opinion that this idea should be considered, and I have been asked to put it before the Congress.

We hope, therefore, that the Permanent Commission will be kept informed by the main line railways, and that the information thus supplied to it will be published in the *Bulletin*. (*Applause.*)

Dr. Levi, *General Secretary* (in French). — I think that competition of road motor transport cannot be compared to that of transport by waterways.

I should like to ask consequently, if Mr. Margot's suggestion is agreed to, that the question should be extended to the measures taken by the different Govern-

ments in order to regulate transport by water.

This question can be raised very usefully in certain countries, such as Egypt, where the position is very serious in this respect.

Sir Evelyn Cecil. — I should like to add one word in support of what M. Margot has said. It does seem to me very important that constant attention should be drawn to the proposals or laws passed by different Governments in respect of regulating road and rail competition, and it is really useful to collect this information because there are a number of timid Governments which are not too ready to act in this matter and would be really aided by having before them actual laws or proposals which have been discussed in different countries. It would be of great practical use to the Permanent Commission from time to time to have this information, and I think it would assist in getting suitable Government regulations on rail and road competition passed into law. (*Applause.*)

Mr. Foulon, President of the Permanent Commission (in French). — Gentlemen, regarding the statements just made by Mr. Margot, Dr. Levi and Sir Evelyn Cecil, I think you will be interested to learn that the Permanent Commission, in a Meeting held in Cairo, has given favourable consideration to the suggestion put forward by Mr. Margot.

It considered that it would be valuable to apply this principle of special reports from the great Railway Systems, not only in the case of competition with the railways, but also on other questions which are paramount at the present time in every country, and under these conditions, the Permanent Commission considered that it would be a good thing if

a programme were drawn up by the Secretariat, so that it could be submitted to a Meeting of the Permanent Commission which will take place next July, and which would define the questions which should be reported upon annually, from the point of view of the results obtained in the different countries, and determine the Railways which would be good enough to undertake to draw up the annual reports on these different subjects.

Consequently, I am very much in favour of the suggestion which has just been made. (*Applause.*)

Mr. Newlands, London Midland & Scottish Railway. — I have listened with very great interest to the suggestions made by Sir Evelyn Cecil, Mr. Margot and Dr. Levi, and would say that these suggestions appear to me to be too directly concerned with the rivalry that exists purely between road and railway transport. I think that another consideration should come under review, that is, a form of transport which is growing up in the hands of private industrialists. That is to say, there are many industries to-day which in a sense provide their own transport and which neither depend on the railways nor on the public road hauliers for transportation of their commodities. I believe it would be right to say that, whereas in the past industry established itself alongside canals or railways in order to get the transport facilities offered by these services, to-day many industries are being established and are growing up without regard to their location alongside canals or railways. Industries are coming into being that have no recourse to railways or canals for the reason that they find their own forms of transport, and I think that in any consideration along the lines suggested by the three

gentlemen who have recently spoken, the position of the industrialists who, I believe, find their own transport to an increasing extent, should not be lost sight of.

Mr. Gevaert, Belgian National Light Railways Co. (in French). — The last suggestion seems to me to give the question excessive amplitude. I think we should refrain from going into the domain of transport carried out by industrialists themselves.

As regards the first part of this statement, according to which factories no longer wish to be located beside waterways or railways, it seems to me that, at least as far as Belgium is concerned, this thesis cannot be supported.

In Belgium, in particular, all factories of any importance are always built either beside the railway or beside a canal.

It seems to me that to extend the proposal in this way would infringe upon the right everyone has to carry out his own transport as he wants to, and I think it would be a mistake to give the question so wide a scope.

Mr. Margot (in French). — I think it would interest the Meeting to know that the question which has just been discussed was dealt with during the discussion on road motor competition.

It arose when the Czechoslovakian delegate, Mr. Ibl, gave us some information on recent legislation in his country.

A question was put to Mr. Ibl, and on page 6 of the No. 7 issue of the *Daily Journal of the Session*. I read :

« In reply to a question by Mr. Henning, Mr. Ibl states that, in Czechoslovakia, private lorries, without being subjected to a concession, are subjected to a tax, lower than that of the transport com-

panies, and, in addition, to the customary tax for using the road. »

This refers to a question that was included in the actual laws in Czechoslovakia, and consequently we should not neglect it. We need not stress the point if we do not want to, but it will naturally come up for consideration before those who have to report on the general question.

Mr. Besser, Permanent Commission of the Association and Ministry of Communications, Germany (in German). — I am of the opinion that the individual organisation of transport should also be included in the summaries. It is true that in some countries this individual transport is not very important, whereas in others, on the contrary, the question deserves consideration.

When speaking of the individual organisation of transport, we should consider not only transport by motor lorry, but also that on private railways.

I suggest, therefore, that the recommendation be re-worded so as to include all individual transport.

Mr. de la Torre y Eguia, Ministry of the Fomento, Spain (in French). — In summary 8, the word « equality » is used. But I think that equality is not always applicable; it may even be found to be dangerous in certain countries, such as Spain, where the railways are heavily subsidised by the State.

I want the summary to be changed therefore, to read : « ... have the right to get fair play from their governments... » instead of « equality ».

Mr. Margot (in French). — The observation which has just been made was already put forward when the section dis-

cussed the matter, but the original text was kept.

The final summaries which have been read are not only special to Section III, but also take into account the wishes expressed by the two other Sections. Consequently it seems to me that now that we have a text which meets the requirements of the three Sections it would be very difficult to change even by one word the text drawn up at the Meetings of the Sections.

For this reason, in the name of all three Sections, I ask that the text submitted be adhered to. (*Agreed.*)

The President. — The Summaries are consequently agreed in the form that was read to you.

Summaries.

« I. — *Railways and road.*

« 1. The question of automobile competition, which was made the subject of very serious consideration during the Madrid Congress, is still far from receiving the solutions recommended in the summary of 1930. These must, therefore, be maintained in their entirety inasmuch as, judging from the reports produced at the present Session, the development of goods transport by road has been much increased by the improvement and the extension of the motor lorry. The consequences are as troublesome to the great Systems as to the Railways of local interest.

« 2. In every country the railways have been seriously handicapped in their efforts to preserve and increase their traffic by the inequality of the conditions governing transport by road and by rail. Since the commence-

« ment of their existence, the railways have been the object of much legislation on the subject of precautions to be taken in the interests of safety, conditions of transport, the right to establish rates and the publication of tariffs. This legislation was justified at its origin by the theory that the railways enjoyed a virtual monopoly, and that it was, therefore, necessary to protect the public in different ways; it continues to be so for the consideration that the railways should serve the general interest.

« 3. The result is that the railways, which have heavy expenses — especially for the maintenance and improvement of the permanent way — are subject as well to taxation, particularly heavy in certain countries, and to heavy obligations in respect of transport and of safety, whereas the automobile undertakings have every liberty in fixing their schedules and their rates as well as in their choice of traffic. They use this liberty to take the cream off the traffic normally remunerative to the railways, which leads to the inevitable consequence of obliging the latter, in order to save disaster, to increase, to the great prejudice of the general economy, the tariffs now in force upon heavy merchandise or goods of first necessity.

« The road motor transport undertakings escape, in addition, in great part the expenses and obligations of the railways, often even in regard to the conditions of remuneration and work of their personnel. They even benefit in some countries from great tolerances in the application of the road police regulations affecting them, and from customs facilities at the frontiers. However, the railway has, like every

« other undertaking, right to a fair distribution of obligations and expenses.
« If this idea of equity cannot be resolved in the same manner everywhere,
« the tendency must at least manifest itself in each country according to its own conditions.

« 4. The statements presented to the Congress indicate a certain number of measures adopted in different countries with the object of establishing a certain equality between the two methods of transport.

« Since, measures of the same nature have been taken in some countries, or are on the verge of being put into force in others.

« It is certain that unregulated competition between forms of surface transport is extremely prejudicial and causes economic losses, and that the low cost of certain types of road transport is more apparent than real, in view of the fact that the high cost of the roads is not equitably supported by the road transport, but recoils on the public. In other words, the road transport industry in this way is subsidised by the rate-payers.

« 5. First of all, it is necessary that the State should lighten the regulations imposed on the railways in order to enable them to modernize their methods, with a view to giving the public the same satisfaction as the automobile, without their being obliged to have recourse to a tariff war which would be disastrous for the general economy.

« 6. The condemnation of such a tariff policy brings logically in its train measures affecting public transport by automobile. To avoid the cases of competition prejudicial to the national general economy, to maintain public auto-

mobile transport in the form of a normal use of the road, to regulate its organisation and circulation as the execution of a public service requires, these are measures that are not contrary to progress and which would conciliate the interests concerned if direct understandings could usefully intervene between the railways and public road transport undertakings.

« Co-ordination would leave each method of transport to fulfil its own role for the good of the public and the aim of regulation would be purely policing. But such direct understandings are generally made difficult by the dissemination of road transport and its particularism.

« The railways have notwithstanding endeavoured in every way to co-ordinate the two methods of transport. In countries like Great Britain, where the railway companies did not possess general powers for operating road services, these powers have now been granted.

« In a general manner, it may be said that, whether by means of road transport services run directly by the railways, or by agreements with the automobile lines, the railways have endeavoured to co-ordinate the two services so that :

« a) The one becomes an affluent of the other, especially in the case of passenger transport;

« b) Transport of goods from door to door may be effected by the creation of well organised collection and delivery services.

« 7. The railways have not ceased to take measures for still further improving their organisation.

« They have accelerated their passenger services. They have often themselves

« utilised automobiles. They have gone
« into the question of general employ-
« ment or rail motor cars, which con-
« stitute in some cases economic, rapid
« and comfortable means of transport.

« Some railways have not hesitated to
« go to heavy expenses in electrifying
« lines with heavy traffic, giving them
« an up-to-date signalling.

« As regards the good services, the
« railways have also remarkably accel-
« erated the rapidity of transport and have
« reduced the period for delivery. They
« have organised door to door services.

« They have had recourse to the use of
« containers.

« The have given to users the facility
« of warehousing goods in the goods sta-
« tions.

« 8. To sum up, it is necessary that the
« railways continue the efforts they have
« made to still further perfect their
« working methods but it is necessary
« that they also receive from their Gov-
« ernments the help and guarantee ne-
« cessary in consideration of the general
« interest.

« For this purpose, the Congress re-
« cords the following resolution :

« The public services by rail, constitu-
« ting a national utility which has wholly

« preserved its value, fulfilling an econ-
« omic and social role, the advantages
« of which extend to all classes of the
« public, have the right to obtain from
« their Governments equality of legal and
« administrative regime for all methods
« of transport, as well as of the fiscal and
« other charges which they bear.

« It is, furthermore, incumbent on the
« Governments to ensure that means of
« transport shall be co-ordinated and to
« employ every possible means so that
« this co-ordination be effected without
« further delay, in a spirit of progress
« for the whole of the country.

II. — *Railways and airways.*

« Air transport, in its present state,
« does not present the same aspects of
« competition.

« In a general way, the aeroplane con-
« stitutes, for very long distances, such
« progress that the railways can only
« continue to facilitate working together
« with the aeroplane.

« There are, however, certain cases in
« which the State, by reason of subsidies
« granted to aeroplane services, should
« intervene in fixing the charges for
« transport, to avoid the competition of-
« fered to the railways.

5th Section : LIGHT RAILWAYS AND COLONIAL RAILWAYS.

INAUGURAL MEETING

20 January 1933 (morning).

PROVISIONAL CHAIRMAN : Mr. F. FIORI,

MEMBER OF THE PERMANENT COMMISSION OF THE ASSOCIATION.

— The Meeting began at 9.00 a. m.

The Chairman. — Gentlemen, in opening this Meeting I am very pleased to welcome the Delegates who will take part in our discussions. As the Permanent Commission has made me responsible for setting up the 5th Section, and the nominating of its Bureau, I suggest that you should chose as your President Mr. E. MELLINI, Chief Inspector in the Railway, Tramway, and Motor Inspectorate in Rome, and as Principal Secretary, Mr. A. ALLARD, Manager, Belgian National Light Railways Company. The choice of these two well known men, as suggested by the Permanent Commission, seems to me a very suitable one, and I am sure that under their guidance the work of the Section will be carried through in the best possible way. (*Applause.*)

I will now ask Mr. Mellini to take his seat as President, and I wish him every success in carrying out his duties.

— Messrs. MELLINI and ALLARD then took their seats as President and Principal Secretary of the Section.

The President (in French). — Gentlemen and dear Colleagues, first of all I must thank you for having chosen me as President of the 5th Section. I appreciate the great honour you have paid me, and I rely upon your good will and above all on your active collaboration so that our work may lead, in common agreement, to useful results.

The 5th Section is principally concerned with light railways. The railways in question were as a rule built at a time when railway transport did not suffer from the competition of other methods, and especially from that of motor transport. The length of these railways does not go beyond 50 or 100 km. (30 to 60 miles); they serve districts where there is not a great deal of traffic, and in which the limitations of transport are very clearly marked. During the last few years, the financial position of these railways has become deplorable as a rule, and it has become imperative to investigate the possibilities of altering their operating methods in order to bring them up to date so as to be able to meet road motor competition. But, as I have said,

these railways are not as a rule in a position to undertake such heavy expenditure, and frequently they have had to resort to subsidies from the public authorities. This is a very difficult position. The technicians are divided into two camps; half of them say : « Here we have a capital value built up during recent years, and we should conserve it as far as possible for the future. » The other half maintain that when a public transport service no longer corresponds to the requirements and needs of the districts served, it should be abandoned.

Between these two arguments there lies, in my opinion, that of the public interest, which suggests that each individual case be investigated on its own.

You see, Gentlemen, that the work of the 5th Section in examining the reports submitted to us will not be too easy. We are not dealing with main line railways, on which expenditure for transformation, maintenance, and modernisation is a necessity, a necessity recognised by the States. The question here is to consider how even small questions are to be dealt with, such questions always being, however, extremely important for small districts and small means of transport.

I hope that you will collaborate wholeheartedly with me in examining the two questions the 5th Section has to discuss in the way I have mentioned, that is to say that we must not start with a point of view that could apply to main line railways : we must recognise that we are dealing with smaller organisations, organisations which perhaps are not an essential part of the life of certain districts,

but the utility of which cannot be totally denied.

We are going to examine two questions of great importance from this point of view.

In addition, I invite you to participate in large numbers in the discussion of Question XI, on motor competition; this subject is being dealt with by the 4th Section but, owing to its very nature, it affects the secondary railways from many points of view.

I will end by paying my homage to the magnificent country in which this present Session is being held : Egypt, celebrated for its ancient civilisation, but which is also a modern country in which all branches of industrial activity and particularly that of transport are being fully developed. (*Applause.*)

We must now nominate the vice-presidents.

The following Gentlemen are proposed for these functions :

Messrs. T. C. SWALLOW, Advisory engineer,
South African Railways and
Harbours;

E. LAJTHAY, Principal Engineer,
Hungarian State Railways;

Dr. C. C. WANG, Director of the
Chinese Government Purchasing
Commission.

(*Agreed to with applause.*)

— The Section, at the suggestion of the President, then completed its Bureau, and drew up a provisional agenda.

— The Meeting ended at 9.30 a. m.

QUESTION XII.

Co-ordination of operation as between heavy and light railways.

Preliminary documents.

1st report (Continent of Europe), by ISHAK Effendi. (See *Bulletin*, September 1932, p. 1793, or separate issue No. 28.)
Mr. L. JACOBS. (See *Bulletin*, May 1932, p. 775, or separate issue No. 10.)

2nd report (All countries except the Continent of Europe), by MOHAMED SOBHI Special Reporter : Mr. L. JACOBS. (See *Bulletin*, January 1933, p. 154.)

DISCUSSION BY THE SECTION.

Meeting held on the 23 January 1933

PRESIDENT : Mr. E. MELLINI.

— The Meeting opens at 9.30 a.m.

The President (in French). — Gentlemen, to-day we have to examine Question XII, worded as follows : « Co-ordination of operation as between heavy and light railways. »

I will ask Mr. JACOBS, the *Special Reporter*, to give us a résumé of his special report.

Mr. Jacobs, *Special Reporter* (in French). — Gentlemen, Question XII was dealt with in two reports : Report No. 2 covers all countries except those of the Continent of Europe, and was prepared by Mohamed Sobhi Ishak Effendi, Inspector and Secretary of the Egyptian

Light Railway Commission. Report No. 1 deals with Continental Europe and its author is the Special Reporter.

The scantiness of the replies to the questionnaire and the very diversity of the conditions revealed by these replies made the preparation of Report No. 2 particularly difficult and did not permit of the formulation of any general conclusions.

Report No. 1 on Question XII, which I have had the honour of presenting to the Congress, examines the co-ordination of main railways and light railways in Continental Europe : out of 131 administrations consulted, 86 have not replied and 13 have replied that they had nothing to say. Out of the 32 replies re-

ceived, 12 emanated from light railways. The Report which we have been able to prepare from the material thus made available is subdivided as follows: In what co-ordination consists — exchange of goods — exchange of passengers — new methods of transport, new means of co-ordination — administrative relations between railways — general remarks and summary.

Co-ordination has served as the pretext for so many financial or political experiments that it was necessary to arrive at a precise definition of its meaning before proceeding to examine its methods and results.

To co-ordinate is not to amalgamate, nor to subordinate, nor to annihilate.

Co-ordination of transport facilities consists in the application of elementary economic principles and will only be found to occur under the pressure of facts. These facts are: 1. the freedom of motor services to develop haphazardly, whence parasitism to the detriment of the general public interest and losses for the public services which have been established at great capital investment, and further, in many cases, losses for the public finances which are heavily involved; 2. the multiplication of separate services competing for the same business and the consequent uneconomic immobilisation of capital; 3. the inertia of governments, accentuated moreover by their post-war difficulties; 4. finally, retarded railway evolution due to the same causes. To summarise: the general economic problem dominates the technical and financial aspect of co-ordination and must consider primarily social interests and the common welfare of a nation as a whole.

If co-ordination is suggested by considerations of general interest, it is the

duty of Governments to see that it does take place.

The urgency of co-ordination has not escaped the attention of the various Governments. Proof of this is to be found in the definite statements made by British, German, French, Belgian and other Statesmen.

All are agreed in recognising that a comprehensive solution of the transport problem is an urgent necessity.

Cases of co-ordination which have been effected between main and light railways are only exceptional and, in any case, more apparent than real, as is shown by the replies to our inquiries. Let us briefly examine the results achieved.

I. — *Exchange of goods.* — This question has been neglected by the main railways, despite the desires expressed by the light railways. Our report cites numerous examples, however, which prove that it is not because traffic interchange is wanting. It is often sufficiently important to justify the provision of quite costly installations which, by diminishing expenses, should have the effect of increasing traffic at present discouraged by the high costs of handling. As a rule, the contributions demanded from the light railways for the use of installations such as overhead travelling cranes, cranes, weigh-bridges, etc., are too high. There have, however, been cases where an agreement has been arrived at. In this connection we may refer to the Swiss Federal Railways, which have special installations for the interchange of loaded wagons between their lines and those of the narrow gauge railways. Similarly, cranes are placed at the disposal of the light railways or of the transshipping agents, partly without charge and partly at low charges.

I must tell you that in Belgium there

are some stations at which the total of the charges debited by the main line companies — maintenance of the station, upkeep of equipment, shunting costs, etc. — amount to 150 francs per ten-ton wagon. You can guess what the result can be.

It is equally desirable that duplication of installations should be eliminated as regard buildings, water cranes, tracks, rolling stock, wagons and engines or shunting tractors.

Why indeed should it be less easy to arrive at an equitable understanding between the main railways and the light railways than between the main railways themselves? Examples to the contrary are, however, not lacking, and they also show how many book-keeping operations and other activities might be avoided, and how much saving could be effected under the heading of staff.

It is equally clear what a disastrous effect is exercised upon the development of traffic, and indeed upon its very conservation, by the exaggerated demands of certain railway companies, who consider they are following a clever business policy by demanding from the light railways excessive contributions for policing, sidings or transshipment charges, or for the renting of land and lines, or for the hire of rolling stock.

It is typical to note that the main railways consider it logical to place gratuitously at the entire disposal of their competitor, the motor lorry, their goods stations and the installations appertaining thereto, and, further, to provide maintenance and policing, whereas they require the light railway to pay for everything, even within the area of the stations belonging to the main railways, as well as policing at level crossings.

All this is contrary to equity and in conflict with the most elementary econ-

omic principles. Undoubtedly the light railways suffer more from road competition than the main railways which facilitate it but, once the light railways have been ruined, the main railways will find themselves at grips with a single adversary whose hands they themselves have done their best to strengthen.

Our report describes several of the systems in operation, where it is easy to discern what corresponds to the general interest and to the interest of the railways concerned. For the rest, at a time when competition against the railways makes itself most felt on short-distance routes, is it not rational to treat the light railway — which is the natural feeder of the main railway — as a prolongation of the latter, by organising interchange stations and by granting the light railway the right of « joint user » of the junction station with a view to reducing the cost to the users? The utility of standard gauge transporter trucks, and still more for narrow gauge, which render possible an approximation to the system of transport by containers, is well-known.

The abolition of the railway monopoly being an accomplished fact, an alliance between the main railways and light railways is imperative, with a view to the elimination of all uneconomic competition, which can be achieved largely by an equitable sharing of the costs of joint installations, by the adoption of rates equivalent to those applied by competitors, and by the provision of services for the collection or delivery of goods at domicile, while continuing to exploit the possibilities peculiar to each of the two types of railway.

II. — *Exchange of passengers.* — It would be superfluous to repeat what

might be done to save loss of time to passengers utilising successively a main railway and a light railway. The separation of the stations of the two systems, their nearness to each other and yet the absence of direct connection, prohibition of crossing the lines, termini far from the urban centres and railway stations imposed upon the suburban lines : all this acts to the detriment of the light railway and to the advantage of the motor-bus, and is directly contrary to the principle of co-ordination.

The main railways as a common case show no interest in the working requirements of the light railways and make scarcely any effort to co-ordinate timetables, to improve the conditions governing the interchange of parcels, farm produce and piece goods. The example set by the Swiss Federal Railways shows, however, how efficacious is the joint transport system, which benefits the passengers of the two types of railway, by issuing through tickets, by there being no enclosures, by the passengers being able to change trains from the same platform, or by using subways, or simply by crossing a station yard or building. In such a station special platforms are set aside for transshipping luggage, parcels, mail, etc. Everything possible is done to bring the light railway right into the station itself, thereby to facilitate interchange.

The same tendency is to be observed in the case of the French Nord Railway Company, which goes so far as allowing the light railways to run over certain stretches of its lines in order to reach either important towns or railway junctions.

As the public no longer limits itself, so far as the choice of the method of transport is concerned, to considerations

of price, comfort and safety, but demands in addition both speed and frequency of trains, an intelligent appreciation of the mutual interests involved is alone capable of inspiring understandings between the different railway systems, involving possibly concessions and even sacrifices. To refer to another aspect, in proportion as the railway acquires new stock : (electric vehicles and light rail motor coaches) the interpenetration, and therefore the interdependence, of the different railway systems increases. It has been fully realised in a number of countries that co-ordination must be accompanied by modernisation : on the one hand main railways are being electrified to work the through services ; on the other hand, on suburban and rural light railways, steam traction is being replaced by electric traction, by electric or internal combustion engined rail motor coaches, by trolley buses and even by motor buses.

In Belgium, the National Light Railways Company, as the result of the successful experiments carried out with rail motor coaches, is building in its own workshops a rail motor coach, utilising the frame and body of an ordinary railway carriage. This rail motor coach will be moderate in cost and will provide seating accommodation for 26 passengers with standing room for 16. It has been described in our report. The Company is contemplating the construction of 250 vehicles of this type for use on lines where the small amount of passenger traffic no longer justifies steam traction.

It goes without saying that, just as much as the rail motor coach, the motor bus, an element of modernisation, constitutes a further obligation to co-ordinate.

III. — *New methods of transport : new means of co-ordination.* — A close understanding is essential between main and light railways, whether from the point of view of collaboration between rail and road, the one completing and prolonging the other, or from the point of view of the sharing of the respective equipment between given points with the object of affording the most economical, rapid and frequent transport facilities.

What has been achieved in this direction by the S. E. S. A. in Switzerland is well known. The first stage in this particular case of collaboration between railways was the adoption in 1927, for all goods traffic, of the same tariffs as those charged by motor transport undertakings, at the same time providing, as do those undertakings, for collection and delivery at domicile. The second step was the organisation of services for collecting and distributing goods in areas which are not served by a railway. The same tendency towards co-ordination exists in France, Germany, Italy and Holland, though in varying forms. It is obvious that in the long run ideas are improving and that the attitude which led the main line railways to under-estimate and neglect the collaboration of light railways in the common defence tends to disappear.

As regards motor bus services, however, it is evident that they cannot be allowed to constitute a duplication harmful to existing public services and to the general economic situation, although they may be justified in a supplementary capacity in districts adjoining others which already possess transport facilities, in certain cases as a substitute or for mixed service in conjunction with railways, or for increasing the frequency of services. It is very desirable that the creation of new motor bus services should

everywhere depend upon the authorisation of existing public services, as is the case in Germany where, since 1929, it is dependent upon the consent of the German State Railways, and the Post Office.

It is of the greatest importance that in each country an organisation common to the two types of railway should be constituted with the mission of facilitating the relations between them and cutting out forms of competition incompatible with the general interest.

IV. — *Administrative relations between railways.* — These relations, which are almost non-existent so far as practical co-ordination is concerned, might well be regulated by the higher transport authorities which have been constituted in a number of countries, if these authorities, realising that the former monopoly of the railways no longer exists, were composed exclusively of real experts and were in a position to take action under Government control.

Such transport authorities are even more necessary in most of the countries of Europe, where there are many areas which have excessive transport facilities relatively to the actual or potential traffic requirements, while other neglected areas require additional means of communication in order to foster their development.

It appears to us, therefore, that the essence of the problem of co-ordination is the adaptation of the means of transport to the nature and quantity of the traffic, due regard being paid to the general economic situation. There can, moreover, be no satisfactory co-ordination in practice unless the lines which such co-ordination is to follow are clearly defined in advance.

From what has been said certain conclusions may be formulated which, we

are happy to note, coincide with those of the great Rail and Road Congresses of Madrid and Washington and with the resolutions passed by the International Chamber of Commerce at its session in Washington, in May 1931.

Everything points to the conclusion that it would not be logical to co-ordinate rail and road transport without previously co-ordinating the activities of the railways themselves. We do not think anyone will deny that considerable progress will have been made once the administrations of the railways, both main railways and light railways, are in agreement not only in regard to the necessity for co-ordination, but also in acknowledging the ideas of solidarity, interdependence and community of interests which must inspire all their efforts.

The first step in this direction seems to have been made. On the 30 June, 1932, the Hague Congress of the International Union of Tramways, Light Railways and Public Motor Transport Services, after considering the report presented on the subject of Question XI, regarding comparison between different methods of rail and road transport, adopted conclusions the wording of which is inspired by the same principles as those set forth in the report which is now presented to you.

We may perhaps be allowed to add that the Reporter, Mr. Jourdain, has felt able to adopt the entire text of point 4 of our summary in substitution for his own text. This identity of views appears to us to be worthy of mention.

We now come to the *Summaries*. We have the honour to submit the following resolutions for the approval of the Congress :

1. The most essential principle which must govern all co-ordination, and in particular

co-ordination between main railways and light railways, is first of all the defence of the public interests, that is to say, the safeguarding of the public economy.

2. The interests of the railways should coincide with those of the public in general : this is the principal criterion for any sound railway co-ordination.

3. Public railway services — constituting an important part of the national equipment and fulfilling an economic and social function the benefits of which, mainly of an indirect nature, generally extend to the whole national community — have the right to protection against anything that tends to ruin their work, provided they endeavour to improve their operation and adapt themselves to the exigencies of traffic.

4. It is the duty of the central authorities to ensure that the transport policy is such that no undertaking likely to prejudice national economic interests can be started.

It is, therefore, their duty to prevent whatever might impede the modernisation and co-ordination of the main railways and light railways and, in particular, economically unjustifiable duplication of services and forms of competition which make profits for private interests at the expense of the general interest.

For the same reasons it is incumbent upon the Governments to take all possible steps to see that this co-ordination is accomplished, and in a manner conducive to the progress of the country as a whole.

The President (in French). — Gentlemen, I must congratulate the Special Reporter on the interesting and comprehensive résumé he has given us.

Before the general discussion begins, I have a remark to make.

We are now dealing with the question of co-ordination of operation between heavy and light railways, and at our coming Meeting with the 3rd Section we will study the very important question — per-

haps the most important at the Congress — of competition between railway and road motor transport. I think, therefore, that it would be a good thing if we limited the summaries for Question XII to matters dealing directly with co-ordination of operation between heavy and light railways, leaving on one side resolutions which are common to Question XI.

I want to make this observation because, in my opinion, Summaries 3 and 4 which the Special Reporter has just read to us, when looked at in a more general way, can be included in the summaries relating to the question of competition between railway and road motor transport.

This being said, we can at once begin to discuss the question which is before us.

I will ask Mr. Level to speak.

Mr. Level, Compagnie Générale de Voies Ferrées d'intérêt local, France (in French). — Gentlemen; first of all, I want to associate the whole Section with what the President has just said, and I congratulate our friend, Mr. Jacobs, on the very brilliant résumé he has just given us.

This being said, I should like to make a few observations, in a very friendly spirit. Mr. Jacobs has given us an interesting and masterly account of the relations that exist between heavy and light railways, but perhaps he is a little pessimistic. I do not want to criticise nor contest what he said about the situation in Belgium. However, he must allow me to point out that in France in particular the situation is not so dark as he has painted it. For example, Mr. Jacobs has spoken about the very heavy charges, 450 francs for a ten-ton wagon, which have to be borne in Belgium on account of the joint stations. In France, we know no-

thing of such charges, and under these circumstances we think great care must be taken in quoting such figures. When there is any sort of interchange of traffic with a main line railway, the charges are in no way prohibitive. At joint stations in France, we only have the transfer charges, which, in the case of a joint station, are added quite naturally to the annual expenditure. But, once again, I must say that, these annual financial charges, when they are distributed over traffic of some volume, are not such that they may be overlooked, for they are always heavy enough, but that they are in no way prohibitive.

On the other hand, we think the attention of the Section should be drawn to the fact that we should, I think, insist here at the Congress on the utility, the necessity even, of coming to an agreement with the main line railways so as to have in most cases through rates. When it is found possible to come to an agreement on this matter and suppress the barrier formed by transfer charges at joint stations, it is undoubtedly in many cases to the greatest benefit of everyone. On the one hand, the public has less to pay and consequently the traffic is more likely to pass and, on the other hand, the light railway because of this gets traffic it would not otherwise have secured. It succeeds in bringing goods to the main line railways, and this is our *raison d'être*.

Under these conditions, I think it will perhaps be necessary — and we are sure our Special Reporter will be able to draft the motion properly — to introduce the idea that we insist very strongly that the main line railways give favourable consideration to our request for participation in the special rates. In many cases, we have been able to restore falling off traffic through these common rates.

Furthermore, I fully associate myself with what our President has just said. I myself was struck by the ardour with which our Special Reporter entered the lists, and with which he treated, very brilliantly moreover, questions somewhat outside today's agenda. As far as the summaries are concerned, I agree with the President that Nos. 3 and 4 should be included in the summaries to Question XI.

Mr. Jourdain, *Chemins de fer Secondaires du Nord-Est, France* (in French). — Gentlemen, I should like to deal with two points of view already mentioned by my friend, Mr. Level, which I think it would be useful to return to, expressing my own point of view more precisely.

First of all, as regards common rates, I do not know if this is so in every country, but certainly in France the charges on goods transferred from main line to secondary railway are absolutely prohibitive; in many cases they tend to divert to the waterways or the roads traffic which otherwise would remain on the railway. There is, for example, the case of goods which have to be transported for 15 or 20 km. on the secondary railway and 25 or 30 km. on the main line railway; the transfer taxes in this case are so heavy that inevitably such traffic is diverted to the roads or waterways. The main line railways are as a rule very willing to agree to the removal of such barriers, when the traffic is considerable, but I think it would be much better to go ahead with the policy pursued for some years in this connection, because when a given traffic of some considerable importance suddenly comes up for transport (we have had cases of traffic of 50 to 60 thousand tons to deal with in the space of 2 or 3 months), some time is required to come to an agreement, and, in

the meantime, there is a risk of losing the traffic to competing methods of transport. I think it is necessary to express an opinion in this connection, as Mr. Level advised, and to express this point of view very precisely in a special summary. I have written down a suggested wording which I have just shown to the Special Reporter and which he agrees to in the main. In my opinion, therefore, after the first two summaries we should add a paragraph worded as follows :

« It would often be desirable to abolish taxes and burdens imposed upon the transit of goods when they tend to divert, towards the road or waterways, traffic which would otherwise remain with the railways. »

If you see no objection, my French colleagues and I would be pleased to see this resolution adopted, or else some similar resolution.

Now as regards the proposal of the President, which Mr. Level supported, to suppress for the time being the proposed Summaries Nos. 3 and 4, I know that it is rather difficult to take up a final position about these two summaries, seeing that we are to discuss in a forthcoming Meeting with Sections 3 and 4 the question of competition and consequently of co-ordination of transport.

But, taking into account what has been said in this connection, I should like Summaries 3 and 4 to be again considered when we discuss competition.

Mr. de Sousa, *Ministry of Public Works and Communications, Portugal* (in French). — Gentlemen, first of all I must congratulate our Special Reporter, Mr. Jacobs, on his excellent report. The questions he has dealt with are very vital ones in Portugal at the present time.

When our railway was built, we made

the mistake of changing the standard gauge track of 1.44 m. (4 ft. 8 1/2 inches) used in most of Europe and of which we had 120 km. (75 miles) under operation, for the Spanish gauge of 1.67 m. (5 ft. 6 in.) in order to get uniformity of gauge throughout the Peninsula.

When it was necessary to develop the system in the northern part of the country, which is very hilly, it was found that the wide gauge made the construction of secondary lines too expensive, so that it was necessary to resort to the narrow gauge. Consequently we have about 2 700 km. (1 680 miles) of 1.67-m. (5 ft. 6 in.) track, operated by two companies, and 700 km. (453 miles) of 1.44 m. (4 ft. 8 1/2 in.) track divided among three companies.

Moreover, it was desired to encourage the first concession holders by recognising too extensive an area of protection — 40 km. (25 miles) on each side — in which no parallel lines could be allowed, but where converging lines might be built, which has given rise to several disputes arbitrarily settled by decrees.

The concession holders of the main lines have sometimes laid all sorts of difficulties in the way of the secondary lines (which bring them an increase of traffic), as regards the timetables, combined and through rates, and the joint stations where the different taxes weigh very heavily on transport, especially in the case of short-distance traffic. For some years, the improvement in the financial situation has made it possible to set aside considerable credits to remake the public roads system which had become almost unusable. The sellers of lorries have given every facility for their purchase, so that in a few years too many public bus services have been set up at the expense of the railway traffic, all the more so as the roads repaired have in most

cases been those parallel with the railway.

I will not enumerate other details so as not to intrude upon the discussion of Question XI. I should only like to point out that in spite of the taking away of traffic by our common enemy, who ought rather to be a co-operator, there are also certain difficulties as regards the co-ordination of the main lines and the secondary railways.

Finally, it is for the public authorities to defend, on the one hand, the railways, whose role in the economic life is irreplaceable, and, on the other hand, to get the railways to co-ordinate and co-operate in the public interest. Every facility must be given to make this possible. In our case, this subject is being studied. At the present time, the Government Control Office is already authorised to allow publication of a provisional scale of rates, with the reserve that these shall be investigated later on — and in the near future indeed — by the Higher Railway Council.

As regards the summaries, I quite agree with points 1 and 2. In the case of summary 3, I think it rather belongs to Question XI. Summary 4 includes principles which, I think, we should adhere to. Finally, I should like to associate myself with the summaries of our eminent Special Reporter, and I should like to see them supported by the authority of the Congress.

Mr. Bouteau, Compagnie Générale des Chemins de fer vicinaux, France (in French). — I wanted to be allowed to speak in order to ask the Special Reporter to modify the wording of summary 3, but as the discussion of the 3rd and 4th summaries is referred to the examination of Question XI, I will no insist.

The President (in French). — We might join up summaries 3 and 4 in the minutes by expressing a wish that these summaries be included among the summaries for Question XI.

Under these conditions, I should like to see the wording of summary 3 slightly altered.

Mr. Henning, Belgian National Railways Co. (in French). — Mr. President, Gentlemen, my friend, Mr. Jacobs, will forgive me if I express the opinion that parts of his report may be taken as a sort of indictment against certain main line railways.

I consider that the question, as it now presents itself, should be examined under a double aspect: first of all from the point of view of the exchange of consignments between main line and secondary railways, and then — this in particular is the side of the question that has been developed — of avoiding competition between main line and secondary railways.

The first of these questions is a very general one. I think that although the measures to be taken to facilitate the exchange of traffic between main line and secondary railways may be the same in nearly every country, it is not so in the case of possible competition between these two kinds of railway. This is a very special question, which crops up in a particular way in each country. In Belgium, the situation is quite peculiar in the sense that the mileage of the secondary railway system is as great as that of the main line railways, so that it might be said that the two of them are inseparably linked together. Undoubtedly two railways, both servants of the public, must avoid competing against each other, when each of them has already a formidable competitor: the motor. But how

such competition is to be avoided is a complicated question.

Mr. Jourdain has just said that the taxes and obligations which weigh upon the exchange traffic between light and heavy railways should be suppressed. Can we adopt such a definite and absolute formula? In certain cases is it not absolutely necessary to insist that the exchange traffic should bear its own costs? It appears to me to be going too far to say that the traffic must not be burdened with any charges.

In addition, common rates have been mentioned. The question has not been very precisely expressed. Are we to understand it to mean that the light railways are to apply the same rates as those of the main line railway? I do not think so.

Generally the light railway can be operated more economically. Consequently it can offer the public much lower rates than the main line railways can, and this is a good thing, seeing that the light railway may be considered as a feeder to the main line railway.

I should like to end by warning the Meeting against adopting summaries of too particular an application, which could not be applied to all exchanges of traffic between heavy and light railways.

Mr. Jourdain (in French). — I should like to point out to Mr. Henning that I did not wish my observations to be taken as having as wide an application as he has indicated. I said: « It would often be desirable to abolish... » This seems to me to imply that this is not at all a general rule.

In fact we, Mr. Level and I, have shown that the cutting out of such taxes is a vital question for the secondary railways, as otherwise the traffic will go to the motor transport services. This is why I in-

sist upon the insertion of this summary, whilst agreeing to my wording being modified eventually, if need be.

Mr. Lisboa de Lima, State Railways in the Portuguese Colonies (in French). — As delegate of the Portuguese Railways, I am quite in agreement with the summaries suggested, and particularly with point 1, seeing that in our Colonies our efforts have always been directed towards a perfect co-ordination of transport.

In the Portuguese Colonies, particularly in Africa and the East Indies, maritime transport has been facilitated.

In the case of transport in Rhodesia, we have even made sacrifices. We have built a magnificent commercial port, precisely in order to be in a position to serve the traffic in the national territory of Portuguese Africa as well as that of the Southern Belgian Congo. We have a magnificent bridge not only to serve the railway system of the Union of South Africa but also for other railway systems.

At the present time we are building a bridge over the Zambezi, which will be perhaps the longest bridge in the world; it is nearly 3.5 km. (2.2 miles) long. The foreign railway systems which in this way are linked up with the Portuguese railways take the same interest as we do in obtaining the best possible co-ordination of transport.

Mohamed Sobhi Ishak Effendi, *Reporter* (in French). — Gentlemen, may I ask you to agree further summaries on two questions which have an indirect influence upon the possibility of co-ordination between light and heavy railways, and which are of considerable importance in our country.

The first of these questions is the gauge of the secondary railway track.

I consider that effective co-ordination depends to a large extent upon the following conditions :

1. the possibility of exchanging rolling stock between the light and heavy railway systems;

2. avoiding transshipment of goods at the joint stations;

3. the most efficacious and economical utilisation of the railway stock, whether rolling stock or fixed plant (i. e. re-utilisation of the stock of main line railways upon the secondary railways).

These conditions are only possible if the gauge of the two railways is the same. As a result of the experience of certain countries, the narrow gauge is beginning to be abandoned.

I will quote as an example South Africa, which no longer intends to build new lines with narrow gauge track (the ever increasing competition of road transport having made the disadvantages of the narrow gauge still more apparent); the railways of the East Indies and Morocco have also given up the narrow gauge in favour of the standard gauge on the routes served by the two Systems.

Does not the above and your own experience show you that it would be useful to recommend those who intend to build light railways linked up with standard gauge railways to decide upon using standard gauge track, or is it still premature to arrive at such a conclusion ?

The second question relates to the routes served by two railway systems : the main railway and the secondary system — a question which also gives the competent authorities in Egypt much bother. Other railways also complain of this situation; in Morocco for example, and perhaps also in Ireland.

The remedy made use of in some countries consists of fixing a common rate

for the two systems; in other countries the two railways are in competition, generally to the advantage of that with the shortest distance, or to the profit of other methods of transport. Are we justified in giving the preference to one or other of the two systems, taking into consideration nothing but the mutual interests of the two railways and the danger of road motor transport competition?

The President (in French). — I would like to ask Mohamed Sobhi Ishak Effendi if he sees no difficulties in the way of turning his remarks into a simple recommendation, because, in my opinion, it would be rather outside the question with which we are dealing here. Consequently I must ask him if he insists upon his proposal?

Mohamed Sobhi Ishak Effendi. — It is a recommendation.

The President. — In that case I will ask you to find a suitable wording for this recommendation.

Mr. Level (in French). — After what I pointed out just now, our colleague Mr. Jourdain suggested a modification of the wording which some of you objected to.

I must tell you that as far as the light railways are concerned, we do not ask for the question to be left with such a general interpretation as some of you seem to fear. I am now acting as interpreter for my friend, Mr. Jourdain, and I have also come to an agreement with Mr. Jacobs and Mr. Henning to modify the summary as follows: « Therefore it would often be desirable to abolish taxes imposed on the transit of goods in cases where they tend to divert towards the

road and the waterways... » I think that in this way everyone will be satisfied.

Furthermore I want you to add another paragraph to Mr. Jourdain's wording of the summary. We suffer, both heavy and light railways, from the slowness with which the public authorities approve our rates proposals. This makes it impossible for us to follow the traffic and keep it for the railway. I do not think anyone would oppose an addition worded, for example, as follows:

« In this respect, it would be worth calling the attention of Governments to the need for a rapid examination in each case, and for authorising provisionally, the application of special rates or common tariffs proposed by the railways to enable them to follow up traffic requirements. »

Mr. de Sousa (in French). — As regards Mr. Level's proposal, I must point out that in our case we have already gone beyond this formula. At the present time, in order to do away with delays in approving rates, the Control Commission is authorised to allow a provisional application of new rates.

The President. — The general discussion is thus ended.

I will now ask our Special Reporter to reply to the observations presented.

Mr. Jacobs (in French). — Gentlemen, our President pointed out to me at the beginning of the Meeting that he considered that my summaries 3 and 4 would be better placed in the discussion on Question XI. I do not insist particularly on these points. However, I must say that it seems to me that Summary 4 might very well be maintained. Undoubtedly in the case of Question XII as much as in that of Question XI, the Central Author-

ity must see to it that the transport policy is such that nothing can be undertaken that is likely to be harmful to the national economy.

If you really wish to leave out this summary, I see no drawback in doing so, but my point of view is that there is justification for placing it here.

Messrs. Level and Jourdain have, on the other hand, drafted a third summary which they would like to insert after my second one. These Gentlemen have just told you that I have agreed to their wording and to the modification afterwards made to it in order to meet the wishes of Mr. Henning, the delegate of the Belgian National Railway Company.

Mr. Level said that I depicted the position as rather gloomy, especially by giving, as an example, a case in Belgium where 150 francs per wagon transferred must be paid to cover all the expenses. Now, Mr. Level, this is not a case of a small station where only one or two wagons are dealt with; actually thousands of wagons are transhipped at this station!

Mr. Henning also said that my report seemed to be an indictment against certain railway companies. I will not go into details because some of the things I should have to say would not be too pleasant. So I will say nothing.

On the other hand, mention was made of Government delays. In Belgium, we cannot reproach our Government anything in this connection. What hampers us is the competition of our big sister, the Belgian National Railways Company, whose powers are so wide that the Minister is shy to counteract her edicts. Here you have the conditions under which we live, and if I have shown the black side of the picture, I did so intentionally.

Furthermore, at the present time, we are studying the possibility of unifying our rates, and I am glad to recognise the

fact that Mr. Henning is doing his best to come to an agreement. I hope that in a few months time, there will be co-ordination over the whole Belgian railway system.

Finally, Mr. Bouteau intended to say: « so that they can develop » in the third summary, instead of: « provided the endeavour to improve... ». I expressed myself in this way precisely because in Holland, for example, the Government says to the railways: « I will not grant any concessions to motor bus services on condition that you develop your system, and for this development to take place, I will allow you two years time. » In Belgium, where such conditions have not been laid down, we have developed in order to obtain a result; unfortunately this has not changed the state of affairs. However as the third summary will be discussed during the debate on Question XI, I have nothing further to add.

The President (in French). — Now that these explanations have been given, I think we can go on to examine the summaries.

It appears to me that Summary 1 has not been criticised by any speaker.

Mr. de Sousa (in French). — I should like to ask if Summary 2 does not merely carry on the idea of Summary 1, so that it might perhaps be well to combine them in a single paragraph.

It would perhaps be sufficient to add to the end of the first summary: « ... with which the general interest of the public should coincide. »

Mr. Jourdain (in French). — Mr. Jacob's first summary is very general, and I expressed the wish that after voting on the first two summaries, and the new summary 3, we should express our desire

to see our third and fourth summaries put before the joint Meeting of the 3 Sections.

Mr. Bouteau (in French). — If this is to be done, I will ask for the wording of Summary 3 to be modified, in accordance with the proposal I put forward earlier.

In France, we want to be protected before we can develop. Obviously if a railway company knows it is protected, and can have confidence in the future, it will develop. It cannot develop if it is not protected, and has fears for its safety.

Consequently I think protection comes before development.

The President (in French). — **M. de Sousa** tells me that he will not insist upon his proposal which was merely a commentary.

Mr. Marguerat, Viège-Zermatt Railway, Switzerland (in French). — I propose to add the word « principaux » after the words : « Chemins de fer » in the French text. (The English text remains unaltered.)

The President. — Summary 1 would thus be :

1. The most essential principle which must govern all co-ordination, and in particular co-ordination between main railways and light railways, is first of all the defence of the public interests, that is to say, the safeguarding of the public economy.

— *Adopted.*

Summary 2 :

2. The interests of the railways should coincide with those of the public in general : this is the principal criterion for any sound railway co-ordination.

Mr. Level (in French). — I suggest we suppress the word « railway » at the end. We might perhaps say : « .. coordination of the Systems... ».

Mr. Vandersypen, Belgian National Railways Co. (in French). — I suggest this paragraph be reworded because, as it stands at present, it asks what is impossible.

The interest of the railways, actually, never absolutely coincides with that of the population. Thus for example, everything else being equal, the railways' interest is to have high rates, and the public's interest, low ones. The idea of the Reporter might be better expressed as follows :

« Railway co-ordination should be made in the interest of the railway systems concerned, without prejudice to the general interest of the public. »

Mr. Czapski, Ministry of Communications, Poland (in French). — I also suggest that we say that the interest of the railways should be co-ordinated instead of should coincide, because it is not possible for these interests to coincide entirely. I will not insist upon this, however.

Mr. Jacobs (in French). — I do not agree; I think my wording is better.

Mr. Jourdain (in French). — I think that we are confusing the general interest of the country and the interest of the railway users. The general interest of the country requires the railways to balance their receipts and expenses so that there shall be no deficit to make good. Perhaps we might replace the word « public » by « nation », but I think the principle that Mr. Jacobs has laid down should be maintained.

The President (in French). — I am

going to read the 2nd summary in its modified form :

2. The interests of the railways should coincide with the general interest of the Nation: this is the principal criterion for any sound railway co-ordination.

Are there any remarks ?

— *The modified version of Summary 2 is adopted.*

The President (in French).— We now come to the new Summary 3 suggested by Messrs. Jourdain and Level :

3. It would often be desirable to abolish taxes imposed upon the transit of goods when they tend to divert, towards the road or the waterways, traffic which would otherwise remain with the railway.

In this respect, it would be worth calling the attention of Governments to the need for a rapid examination, in each case, and for authorising provisionally the application, of special rates or common tariffs proposed by the railways, to enable them to follow up traffic requirements.

Mr. Jourdain (in French).— Before we take the idea expressed by Mr. de Sousa into account, I suggest that we add: « ... as is done in some countries. »

Mr. Jacobs (in French).— I want to ask Mr. Jourdain if it would not be possible to suppress the last part of his summary which reads : « ... when they tend to divert, towards the road or the waterways, traffic that would otherwise remain with the railway. »

This gives a bad impression. It gives us the appearance of being opposed to road transport, and consequently merely wishing to abolish the charges which fall upon those goods, which might eventually be carried by road or water. It would be better not to say this.

Mr. Level (in French).— I regret to say I do not agree with Mr. Jacobs. It is our duty to be very frank and speak the whole truth, such as it appears to us. We have certain charges and transfer taxes at stations, which in many instances protect our traffic. I will give you an example: we have sugar factories on our local lines. It is frequently to our interest to see that loads of sugar-beet should not continue beyond our lines to other factories. In this case, the transfer charges at the joint stations are a safeguard for us and help us to keep the traffic; we are very far from wishing to see these transfer charges abolished.

The second part of Mr. Jourdain's opinion is absolutely necessary to make it quite clear that we do not wish to abolish the transfer charges in every case.

I insist that this wording be accepted: it is, I think, a safeguard for us.

Mr. Jacobs (in French).— We say here that we want to work in the general interest. It may be in the general interest for transport to be carried out by water or by road. We must not appear to circumvent the public interest.

— After this discussion, the text of Summary 3 was examined by the Bureau, together with the SPECIAL REPORTER, and MESSRS. JOURDAIN and LEVEL.

Mr. Allard, Principal Secretary, then read the proposed final text :

It would be desirable to abolish taxes imposed upon the transit of goods, in cases where they would result in the turning away of traffic which otherwise would be handled by the railway.

In this respect it would be worth calling the attention of Governments to the need for a rapid examination in each case, and for authorising provisionally the application, of special rates or common tariffs proposed by

railways, as is done in some countries. Only these measures will permit to continually follow up the requirements of the traffic.

— *Adopted.*

The President (in French). — We have thus agreed, to our satisfaction, the wording of the summaries, and we now come to the old Summary 3, about which it was said that it would be better to turn it into an item on the agenda to be discussed with Question XI.

Do you see any difficulties in this ?

Mr. Bouteau (in French). — I insist that we should now agree about the wording.

Mr. Jacobs. — We might replace the words : « provided they endeavour to improve... » by the following : « in order to allow them to evolve and adapt themselves to the traffic requirements. »

Mr. Wang, Ministry of Railways, China. — I am in favour of modifying this wish so as to make our position safe. It might read as follows : « have the right to protection against anything in the nature of direct or indirect subsidies by the public, or more favourable treatment by the Government, that tends, etc. »

Mr. Henning (in French). — I think the Special Reporter would agree in recognising that the word « protected » gives a bad impression to public opinion. What we are asking is that there should be free competition in so far as the burdens imposed on each method of transport should be identical. I think it would be better to use some negative term instead of saying « protected ».

We might say : « Public railway services — constituting an important part of the national equipment and fulfilling an

economic and social function the benefits of which, mainly of an indirect nature, generally extend to the whole national community — may not be made the subject of unequal competition which would tend to ruin their activity. »

The expression is more general and it includes, I think, what the Special Reporter wanted to introduce in his summary.

I am anxious that the word « protected » should not be used.

Mr. Jacobs (in French). — I do not think that Mr. Henning's proposal as put forward just now can be accepted. In fact we have a right to be protected; if we do our duty, the Government ought to protect us. I do not think public opinion would look unfavourably on the word « protected ».

Mr. Bouteau (in French). — We should not be afraid of using the word « protection ».

Mr. de Sousa (in French). — I suggest that we replace the word « protected » by « defended ». The difference in meaning is only very slight, but it corresponds to the idea expressed.

Mr. Jacobs (in French). — It has a still stronger meaning than the word « protected ». I hold to my own wording.

Mr. Henning (in French). — I regret that the Special Reporter will not agree to alter his wording. We might use the word « defended ».

Mr. Jacobs (in French). — Very well then, I will agree to the word « defended ».

The President (in French). — Consequently the final text is :

« Public railway services — consti-

tuting an important part of the national equipment and fulfilling an economic and social function, the benefits of which, mainly of an indirect nature, generally extend to the whole national community — have the right to be defended against anything that tends to ruin their work, in order to allow them to evaluate and adapt themselves to the traffic requirements.

The advantages directly or indirectly enjoyed by other means of transport, would thus be taken into account. »

— *Adopted.*

There now remains Summary 4. Are there any remarks ?

Mr. Level (in French). — As far as I am concerned, I do not wish to see a

single word of this summary changed, as it seems very well worded to me. But I ask that it be brought up when Question XI is discussed.

The President (in French). — You therefore propose to make one statement with the old Summaries 3 and 4 ?

Mr. Jourdain (in French). — These summaries are in fact opinions which we will put before the 3rd and 4th Sections when they meet jointly.

The President. — Does anyone wish to say anything ?

— The two points are thus adopted and will be brought up when Question XI is discussed.

— The Meeting ends at 11.55 a.m.

DISCUSSION AT THE PLENARY MEETING

24 January 1933.

PRESIDENT : H. E. IBRAHIM FAHMY KERIM PASHA.

GENERAL SECRETARIES : MESSRS. P. GHILAIN, YOUSSEF RISGALLAH BEY,

Dr. I. G. LEVI and FOUAD HASSIB BEY.

ASSISTANT GENERAL SECRETARIES : SIR HENRY FOWLER and Mr. P. WOLF.

Mr. Ghilain, *General Secretary*. — We now pass on to the Summaries of Question XII, which have been published in today's issue of the *Daily Journal of the Session*.

— *These Summaries are read out.*

The President. — Are there any remarks as regards these Summaries ?

— No objection being raised, the summaries of Question XII are considered as adopted.

Summaries.

« 1. The most essential principle which
« must govern all co-ordination, and in
« particular co-ordination between main
« and light railways, is first of all the
« defence of the public interest, that is
« to say, the safeguarding of the public
« economy.

« 2. The interests of the railways
« should coincide with the general in-
« terest of the Nation : this is the prin-
« cipal criterion for any sound railway
« co-ordination.

« 3. It would be desirable to abolish
« taxes imposed upon the transit of
« goods, in cases where they would result
« in the turning away of traffic which
« otherwise would be handled by the
« railways.

« In this respect it would be worth
« calling the attention of Governments
« to the need for a rapid examination in
« each case, and for authorising provision-
« ally the application, of special rates or
« common tariffs proposed by railways,
« as is done in some countries. Only
« these measures will permit to con-
« tinually follow up the requirements of
« the traffic. »

QUESTION XIII.

The use of rail motor cars on secondary railway lines.

Preliminary documents.

1st report (Great Britain, Dominions and Colonies, United States of America, China and Japan), by Mr. A. D. J. FORSTER. (See *Bulletin*, April 1932, p. 451, or separate issue No. 4.)

2nd report (Continent of Europe, except Italy, by Mr. F. LEVEL. (See *Bulletin*, June 1932, p. 1133, or separate issue No. 17.)

3rd report (Italy and Colonies, Africa, except the British Dominions and Colonies, Latin America), by Messrs. LA VALLE and MELLINI. (See *Bulletin*, September 1932, p. 1801, or separate issue No. 29.)

Special Reporter : Mr. E. MELLINI. (See *Bulletin*, January 1933, p. 161.)

SECTIONAL DISCUSSION.

(3rd and 5th Sections meeting jointly).

Meeting held on the 25 January 1933.

Mr. M. MARGOT, PRESIDENT OF THE 3rd SECTION, IN THE CHAIR.

The President. — I will ask M. MELLINI, the Special Reporter, to give us a brief résumé of his special report which sums up all the reports drawn up on this question.

Mr. Mellini, *Special Reporter* (in French). — Gentlemen, the question of rail motor cars was first raised at the London Congress and the trials made in 1924 and 1926 had already prepared the way for an increasingly important development in the application of this method

of railway traction. The first trials we carried out did not, however, give very good results. This was because we experienced a certain amount of difficulty in adapting them completely to railway traction and the first machines tested were not able to reach high speeds. The chief preoccupation was to reduce the number of the staff and confide the driving of these rail motor cars to a single man. For this reason, the investigation into this question at the Madrid Congress did not lead to any tangible results.

Latterly, however, the unfavourable economic situation of the railways — especially of the secondary railways — and the ever increasing competition of road motors have led to the problem being fully taken up again, and it is now considered as an efficacious way of fighting motor competition. I would like to point out, however, that from the point of view of speed, starting up and acceleration, of the weight which should not be too great so that it can be used on existing lines, and finally as regards the intensification of the train services between two given points, my summing up, as well as the report I prepared for the Congress, is now somewhat out of date. I think, however, that it would be useful to read to you the general summaries I drew up, bearing in mind, however, that certain modifications should be made to them.

The general summaries of my report are as follows :

1. The rail motor car, with either a spark or compression-ignition engine, must be considered as one of the systems of traction which meet the requirements of light railways with small traffic, particularly in this critical time which, more than ever, makes economic working a matter of vital importance for all railways. Under special conditions of working, accumulator and steam motor cars may be considered as an equally useful system of traction.

2. Present tendencies in the construction of rail motor cars point to the increasing utilisation of heavy-oil engines and to the use of more powerful vehicles, which seems to indicate the necessity of the adoption of electrical transmission. Above 150 H. P., rail motor cars with Diesel-electric engines are to be advocated.

3. Rail motor cars should apparently possess the following characteristics :

a) a high running speed, at least of 50 km. (31 miles) per hour;

b) quick acceleration, permitting of equally high commercial speeds;

c) light weight in relation to the seating capacity;

d) a carrying capacity slightly in excess of normal traffic requirements;

e) sufficient engine power to haul a second vehicle. This characteristic entails the necessity of fitting standard types of coupling;

f) two driving compartments, or one only, but in the latter case so situated as to permit of driving in both directions.

4. If real advantage is to be derived from the use of rail motor cars, there must be a more extensive use of these vehicles and their substitution for the present steam engine services must be as complete as possible. This transformation of the system of traction must be accompanied by the necessary modernisation of installations and simplification of working with a view to satisfying the ever increasing exigencies of the public, in particular for fast and frequent trains and moderate fares.

I should like to add that, as far as Italy is concerned, at the present time we have in hand some very important trials, about which I believe my colleague, Mr. LA VALLE, can give you some information.

The President (in French). — The Special Reporter is to be thanked for his résumé, and the summaries he has just read us. This résumé shows that the reports were drawn up at a time when the question was not as fully developed as it is today. Progress therein has been extremely rapid, trials in various directions are being carried out in every country, and I think that our Special Reporter was quite right in saying that we must adapt the summaries to the present conditions.

The general discussion can now begin. Mr. Level will speak first of all.

Mr. Level, *Reporter* (in French). — We have all read with great interest the brilliant résumé drawn up by Mr. Mellini. As he has told you, we, the reporters, were obliged to draw up our reports in accordance with a questionnaire sent out 18 months ago. The question has, of course, developed considerably since then, when the problem of rail motor cars had only been dealt with in isolated cases. At the present time, all the railways, both large and small, have got down to work, since they have realised that the use of rail motor cars may indeed be a solution for the difficulties we all are experiencing.

The result is that the summaries Mr. Mellini has got out, though exact fundamentally, are in my opinion at any rate, a little too precise. I think that we should be content with something more general; above all we should not appear to favour or to condemn certain solutions which have been proposed recently and which have shown themselves as probably extremely valuable. Thus, I think that in a question like the one we are dealing with we must not be led into saying, for example, that such and such a system must have electric transmission above such and such a power. You know that in France, for example, interesting solutions have been put forward this very year: thus we have the « *Micheline* » which you all know, as well as other types. Among high-power rail motor cars, we have the « *Pauline* » which is equally well known. This rail motor car, which is of a very powerful type, can reach high speeds and has nonetheless mechanical transmission. Consequently we cannot say, in a general and definite manner, that electric transmission has to be used.

It would perhaps be better to get out more general summaries, indicating solutions without giving too precise details

about them, so as to avoid making a premature choice which later experience will condemn, and which there is no reason to define today.

The only idea we must retain is that the solution provided by rail motor coaches in an extremely interesting one.

We have already had a fairly extensive experience, and if our friends of the main line railways forced by present-day circumstances come to make use of rail motor cars, it can be said that they are benefiting to a great extent from our own trials. We can tell them in advance that, even in cases where the use of the rail motor car will not lead to increased receipts, the rail motor car is interesting in itself because it leads to extremely important reductions of expenditure, which are all the more important because people are beginning to realise in the different countries, and particularly in France, that the rail motor car is simply an automobile on rails, so that there is no more reason for having more than one driver than there is on the road.

We are authorised in France, in a certain number of cases, to make use of a single man, and from the point of view of safety we operate very simply by means of block sections controlled by telephone.

In comparison with a light steam train requiring three men, for example, the rail motor car only requires one: the cost is therefore very much lower, and this is the point to which I wish to draw the attention of the Meeting.

To sum up, I wonder whether it would not be as well to extend the scope of the summaries presented by giving them a rather more general aspect.

The President. — Mr. La Valle will now speak.

Mr. La Valle, *Reporter* (in French). — I would like to give you some information about the trials carried out in Italy, in 1932.

As a result of these trials, two-bogie Fiat rail motor cars, weighing 12.5 tons when empty, have been put into service on the State Railways. These rail motor cars, which are fitted with a 120-H.P. petrol engine, have seats for 48 passengers and standing room for 22. They can run at a maximum speed of 120 km. (75 miles) an hour.

Mr. de Sousa, Ministry of Commerce and Communications, Portugal (in French). — Our railways were in a very difficult position during the war, when there was a shortage of fuel and lubricants, as well as of stores for the maintenance and repairs of the rolling stock. We had to burn wood, and make use of soft-wood sleepers, which only had a very short life.

On the other hand, the economic depression made it impossible for us to obtain sufficient funds to replace our stock and permanent way in a fitting manner. Later on, competition of the motor services came into being and took away a very appreciable part of our traffic. In order to reorganise the traffic, it was necessary to increase the speed, multiply the trains without putting too much strain upon the operating department, organise door to door transport, etc. Trials of rail motor cars therefore appeared to be necessary, but there was a certain amount of uncertainty about the types which should be adopted.

I carefully followed the way the question was investigated at the Rome, London, and Madrid Congresses, although no certain and definitive results, as regards the preference to be given to either light or heavy rail motor cars, petrol or heavy fuel oil engines of the Diesel type, the

use of accumulators or even of steam engines, were arrived at. The question was always referred to the next Congress, and here we are studying it again. The rail motor car seems to us exactly what is wanted in certain cases, particularly for secondary lines, but the heavy vehicles with Diesel engines are so costly that our Companies, who have to contend with very serious difficulties and have little net income, hesitate to make the large capital expenditure involved.

I was in Paris eight months ago, and collected there, thanks to the courtesy of the Traction and Rolling Stock Department of the Midi Railway Company, much valuable information about their « Pauline » rail motor cars, as well as from Mr. Dautry, the eminent Manager of the State Railways, who offered to let me make a trial journey either in the « Michelines » — which did not seem to be likely to solve the problem — or in Renault rail motor cars with Diesel motors. I visited very thoroughly the Renault factory where the question is being investigated. The Société Générale des Chemins de fer économiques gave me some very interesting information about its petrol engine-driven de Dion-Bouton rail motor cars, which are very light and can be turned where they stand on the line, without a turntable being required. Mr. Jacobs, when Question XII was being discussed, spoke about light rail motor cars used on a large scale on the Belgian light railway system, which give every satisfaction.

In England, I obtained information, which I have not yet been able to check, about the « Road Railers », which are lorries or light lorries running on rail or road, fitted with petrol or Diesel engines, and which can give through or door to door transport. I do not know if sufficient experience has been obtain-

ed with such vehicles for their use to be recommended, and I should be very glad if one of our English colleagues could give us some precise information on the subject. Moreover, I should be very grateful for reliable and practical information, about this important question of the types of rail motor cars, from those of our colleagues who have made detailed trials of them.

The President (in French). — To sum up, Mr. de Sousa wishes to know, from information which can be given to the Meeting, which types of rail motor coaches are to be recommended.

Mr. de Sousa (in French). — I particularly wish to have information about the « Road-Railer », a vehicle which can run either on the railway or on the road. Our English colleagues will perhaps be able to give us some information on this subject.

Mr. Jacobs, Belgian National Light Railways Company (in French). — I wish to reply to Mr. de Sousa's request for information about operation by rail motor cars. When Question XII was being examined, I reported that our railway system intended to build three hundred rail motor cars according to its own designs. I can add that the cost price of the vehicle-kilometre has fallen to 3.50 Belgian francs as compared to 6.50-7.00 for the steam train-kilometre. But that is not the greatest benefit. Mr. Level has said that the first advantage, a very considerable one, is the resulting decrease in expenditure. This is about 100 % as it has fallen from 6.00-7.00 francs to 3.50. We hope to obtain still greater benefits by recovering lost traffic. At the present time, we are operating 8 lines, and on these 8 lines, 50 to 100 % of our

lost passengers have been brought back to the railway, and what is better still, the motor services which were competing against us had to give up business. Without any hesitation, we are going to extend the rail motor car services over our whole system of 4 000 km. (2 500 miles). I should be very pleased if you would pay us a visit. Those of our foreign colleagues who have visited us — and several have done so — appeared to have been very interested. Mr. Level also sent an engineer to us; today I can tell him that since then we have made several improvements and now the design our vehicle is definitive.

We are now considering the possibilities of the heavy fuel oil motor, and we hope to have brought it to a satisfactory stage of development in a year's time.

Mr. Seefehlner, Permanent Commission of the Association and Austrian Federal Railways (in German). — In the summaries for Question XIII, rail motor car services are recommended as being economical.

I am of the opinion that they can only be considered as economical if a saving can be made in driving them, i. e. in staff. I should like to ask therefore if it would not be a good thing to mention that rail motor cars should be driven by a single man.

I cannot subscribe to the statement that a rail motor car is as economical as a road motor vehicle. The conditions which govern the working of rail motor cars are absolutely different from those that have to be taken into consideration in the case of road vehicles; consequently each method of transport should be considered under its own particular aspect.

Under these circumstances, it is erroneous to say that rail motor coach services are economical; they are only econ-

omical if a single man can be made responsible for operating the vehicle, and for this to be possible the rail motor cars must be fitted with appropriate braking devices. It is desirable, therefore, that a recommendation in this sense be put before the Governments and the necessary authorisation obtained. I should like to call the attention of the Special Reporter to this point.

Mr. Goonetilleke, Ceylon Government Railway. — I shall be very grateful if Members would indicate in the course of their comments if they have any preference, as a result of their experience, towards petrol rail cars, as against steam rail cars. There is also the question of the very rapid depreciation of some of the models.

Mr. de Sousa (in French). — To clear up the question of driving, I should like to know if anyone has tried to operate large rail motor cars with a single man.

The President (in French). — M. Level has told us that this has been done on the secondary railways.

Mr. Mellini (in French). — And also on the main lines of the Italian railways.

The President (in French). — It seems to me that we can now end the general discussions.

As far as Mr. de Sousa's request is concerned, it seems to me difficult to introduce into the summaries technical information taken from the statements made during the discussions. Our summaries should have a rather general character. What I propose to do, however, after the summaries have been agreed, is to express the opinion that the Permanent Commission of the Congress should be

kept informed by the Railway Administrations about the progress made, particulars of which would be published in the *Bulletin*.

It seems to me that this should satisfy Mr. de Sousa, and at the same time be very useful for everyone.

Mr. de Sousa. — Thank you, Mr. President.

Mr. Level (in French). — I should like to add a word about a question that has not been touched upon, that of the cost of converting certain passenger vehicles into rail motor cars.

Our colleague, Mr. Jacobs, has told us about the extremely interesting trials carried out on the Belgian light railways. I delegated one of my assistants to look into this, and I must admit that I was very much attracted by what had been done. I did not exactly copy what Mr. Jacobs had done, but I was inspired thereby, and I succeeded in changing some rather out of date passenger carriages into rail motor coaches. I was at once led to adopt the Diesel motor, and the meeting will be interested to hear that conversions of this kind are very cheaply carried out.

On the Belgian light railways, by this method, a petrol motor coach can be provided for 100 000 Belgian francs; in our case the cost was 60 000 French francs and with a Diesel motor, 80 000 francs. In this way we get rail motor coaches which only cost about half what we have to pay if we buy them from outside firms. We have equipped these vehicles for speeds of 60 to 70 km. (37 to 43.5 miles) an hour : this, of course, is a question of engine power and gear ratios.

If you will allow me, Mr. President, I would like to read some proposed summaries I have drawn up.

The President (in French). — We will compare them with the modified wording which Mr. Mellini got out.

Consequently I suggest that the Meeting should adjourn for 10 minutes to enable us to compare the two proposed texts and draft a common wording.

(The discussion is interrupted at 10.20 a.m. and resumed at 10.30.)

The President (in French). — We will now resume the discussions.

We will put before you proposed summaries, prepared by the Special Reporter with the assistance of Mr. Level.

Mr. Mellini (in French). — With the assistance of our worthy President and Mr. Level, I have prepared the following new text :

1. The use of rail motor cars which, up to the present, has only provided a solution of the question in isolated cases, lends a new interest to the consideration of automobile competition, the development of which is occupying the close attention of all Railways, not only the large Companies but also those of local interest.

2. The rail motor car can be considered as one of the systems of traction fulfilling the needs of lines with little traffic and responding best to the need for reduction of the working costs, especially when the vehicle can be driven by one man only.

The present tendency in the construction of rail motor cars is towards the use, more and more extended, of heavy-oil motors and the employment of more powerful cars.

3. Rapid transport, which the road automobile endeavours to provide, requires, to be adopted in a practical manner on secondary lines, an engine capable of increased overall speeds, and with a cost such that the volume of the traffic can be increased without extra charges.

4. The rail motor car should be an easy working machine, specially capable of quick starting and stopping, getting up speed rapidly, and having sufficient power to take into account the gradients of the line served.

In some cases the reserve power could be utilised for drawing a trailer.

It would be advantageous, particularly for short journeys or for shuttle services, to have a rail motor car that can be run in both directions.

These are very general summaries, which seem to me to meet the ideas developed by Messrs. Level and Seefehlner.

Mr. Jourdain, Chemins de fer secondaires du Nord-Est, France (in French). — Mr. President, the question I want to raise is of a general nature. I wonder whether, to meet Mr. de Sousa's request, a note could not be added to the summaries which have just been read to us. As far as we are concerned, 10 years ago we began to make use of rail motor cars, and we have come to recognise that in the beginning the tendency was to fit these vehicles with motors of too low horse power. We have some vehicles which have been in service for 10 years; at the beginning they were fitted with 40-H.P. motors, which we have now replaced by 80-H.P. Diesel motors. We had some two-bogie vehicles accommodating 70 passengers, which had 80-H.P. motors, and these we have changed into 150-H.P. motors, which power is barely enough; these changes have proved very useful from the economic point of view.

I think that it would be really useful if our summaries gave some advice to those of our colleagues who have not yet had any experience of rail motor coaches, who wish to make use of them, and who have come here to obtain information. Would it not be more precise to say that our engines should have a sufficient re-

serve of power to avoid working the motors to full capacity all the time?

The President (in French). — I suggest that we examine the new summaries point by point, as this will enable us, if need be, to make any modification felt desirable.

Mr. Mellini reads *Point 1* of the new summaries.

— *Summary 1 is adopted without comments.*

Mr. Mellini then reads *Summary 2* again.

Mr. Jourdain (in French). — I think we might say: « It is to be recommended » or « It is recommended to employ sufficiently powerful motors ».

The President. — This is really a question of detail, and I consider that the proposed text is adequate.

— *Summary 2 is adopted.*

Mr. Mellini re-reads *Summary 3*.

Mr. Henning (in French). — Is the rail motor coach only really to be recommended on « secondary lines »? In Belgium we are also considering using rail motor coaches on certain main lines.

The President (in French). — We have, I believe, forgotten just now to include a small paragraph about this. In any case, we will give effect to Mr. Henning's remark.

— *Summary 3 is adopted*, Mr. Henning's remark being kept for future discussion.

Mr. Mellini reads *Summary 4*.

The President (in French). — The question of flexibility has been introduced into this summary, as well as quick stops, and mention is made of a sufficient reserve power, which means that the vehicle must be more powerful than usually needed; if a line on the level is being considered, a 10 % reserve of power is sufficient; on the other hand in the case of a line with gradients there must be a reserve of power of 30 to 40 %.

Mr. Savary, Swiss Federal Railways (in French). — I should like to support the text drawn up by the Bureau, as I understand very clearly the interest of the question of power. But there is a danger of exaggerating this, as if the power is too great the saving is lost. The idea of economy is expressed most happily in the Bureau's wording.

The President (in French). — In France, there has been a tendency to make the machines too powerful.

It seems to me that the idea of power is sufficiently stressed to satisfy Mr. Jourdain. It might perhaps meet the case if we left the text unaltered whilst reporting in the minutes Mr. Jourdain's remarks and Mr. Savary's reservation.

Mr. Jacobs (in French). — Could we not say that the rail motor coach ought to be « easy working and comfortable »? If we have been successful in Belgium, it is only because our rail motor coaches are more comfortable than road motor vehicles and moreover noiseless.

The President. — I agree to the addition: « and comfortable ».

Mr. Mellini (in French). — One last paragraph remains: « The employment of the rail motor car can also be considered

on the main lines, for a better local service. »

I suggested just now that this paragraph should be deleted as it does not fall within the competency of this Section, although I see no objection to it.

The President. — This paragraph takes Mr. Henning's observation into account, and if no objections are raised we will include it in No. 5.

Mr. Level (in French). — We might say : « ...can also be considered usefully » but I do not insist.

Mr. Direz, French State Railways (in French). — If the use of rail motor cars on main lines is being considered, I must point out that they can also be used for expresses. On the Railway to which I belong, the French State Railways, we intend to make use of rail motor coaches in connection with the transatlantic mail boats at Cherbourg and Havre, and also for summer services between Paris and Trouville-Deauville. If therefore a sum-

mary on the utilisation of rail motor coaches on main lines is to be included, I want to see added : « ...and for special requirements ».

The President (in French). — The text would therefore be : « for a better local service and for special requirements ».

When the question was set three or four years ago, it was worded in accordance with the ideas then prevalent. A great development has occurred since then. Mr. Direz's observation is, however, rather different, and I think his suggestion might be put aside as being outside the subject with which we are dealing. We will consequently give effect to Mr. Henning's suggestion by adding the proposed Summary 5 and we will mention Mr. Direz's remark in the minutes. (*Agreed.*)

The text of our summaries is thus agreed, and we will read the English and German translations at the beginning of tomorrow's meeting.

— The meeting adjourns at 11 a.m.

Meeting held on the 26 January, 1933.

Mr. M. MARGOT, PRESIDENT OF THE 3rd SECTION, IN THE CHAIR.

The President (in French). — Gentlemen, we will continue the discussion of Question XIII, the general summaries of which we drew up yesterday, with the reserve of making a slight modification to Summary 4, and of reading the English and German translations of the complete text.

As you will no doubt have noticed, the minutes of the meeting as reported in the *Daily Journal of the Session* call attention to the slight modification in Summary 4, made by the Bureau in order

to take into account Mr. Jourdain's observation.

We will begin therefore by reading through the French text of the summaries once more.

Mr. Mellini then read Summaries 1, 2 and 3, which remained unchanged.

Mr. Mellini. — *Clause 4* : « 4. The rail motor car should be an easy working and comfortable machine, specially capable of quick starting and stopping, getting up

speed rapidly, and possessing *a reserve power sufficient to avoid constant working of the motors at their maximum capacity.* »

The President (in French). — Gentlemen, here you have the modification which has been made. Instead of considering the profile, we have directed attention to the limit of power of the motor.

The last two paragraphs of Summary 4 have not been modified, and Summary 5 remains unchanged.

— Are there any remarks?

— As no objections are being raised, we will consider the text of the summaries as agreed, with the modification pointed out in Summary 4.

The corresponding English and German texts were then read.

— The Meeting then resumed the discussion on Question XI.

DISCUSSION AT THE PLENARY MEETING

held on the 30 January 1933 (morning).

H. E. IBRAHIM FAHMY KERIM PASHA IN THE CHAIR.

GENERAL SECRETARIES : Messrs. P. GHILAIN, YOUSSEF RISGALLAH BEY,

Dr. I. G. LEVI and FOUAD HASSIB BEY.

ASSISTANT GENERAL SECRETARIES : Sir HENRY FOWLER and Mr. P. WOLF.

Mr. Ghilain, *General Secretary*. — We will now examine the summaries adopted by the 5th Section as regards Question XIII. These summaries appeared in No. 6 of the *Daily Journal of the Session*.

(These summaries were read to the Meeting.)

The President. — Are there any objections?

— *No remarks were made.*

The summaries of Question XIII will consequently be considered as adopted.

Summaries.

« 1. The use of rail motor cars which, « up to the present, has only provided « a solution of the question in isolated « cases, lends a new interest to the consideration of automobile competition, « the development of which is occupying « the close attention of all Railways, not « only the large Companies but also those « of local interest.

« 2. The rail motor car can be considered as one of the systems of traction fulfilling the needs of lines with « little traffic and responding best to « the need for reduction of working

« costs, especially when the vehicle can « be driven by one man only.

« The present tendency in the construction of rail motor cars is towards « the use, more and more extended, of « heavy-oil motors and the employment « of more powerful cars.

« 3. Rapid transport, which the road « automobile endeavours to provide, requires, to be adopted in a practical « manner on secondary lines, an engine « capable of increased overall speeds, « and with a cost such that the volume « of the traffic can be increased without « extra charges.

« 4. The rail motor car should be an « easy working and comfortable machine, « specially capable of quick starting and « stopping, getting up speed rapidly, and « possessing a reserve power sufficient « to avoid the constant working of the « motors at their maximum capacity.

« In some cases the reserve power « could be utilised for drawing a trailer.

« It would be advantageous, particularly for short journeys or for shuttle « services, to have a rail motor car that « can be run in both directions.

« 5. The employment of the rail motor « car can also be considered on the main « lines, for a better local service. »

Mechanisation of the control of the fuel used and the distance run by locomotives.

The « Rona » locomotive meters,

by N. M. MOTCHAROFF,

Mechanical Engineer, Locomotive Department, Rumanian Railways, Bucarest,

and A. S. SOKOLOFF,

Mechanical Engineer, of Messrs. Louis Sacré & Frères, Liège (Belgium).

(*Revue Universelle des Mines.*)

The work done on the railways to obtain better use of the locomotives tends to result in obtaining the maximum mileage with the maximum load hauled, whilst using the minimum of fuel per gross tonne-kilometre.

The control of the fuel used on each locomotive is generally obtained by comparing the actual consumption and the figures known as « fuel allowances » got out for each engine-kilometre or for each 100 gross tonne-kilometres. These allowances are calculated separately for each type of locomotive, for each class of train, and for each section of the line.

In order to encourage the staff to take a keener interest in keeping the engines in repair and in saving fuel, some companies apply various systems of premiums for coal saved on the standard allowances and also others proportional to the distance run by the locomotive.

The fuel allowances are calculated as a rule with some margin above the quantity used by an average engine worked by an average set of men.

The savings effected and the corresponding premiums allocated to the set of men on an engine are increased in proportion as the maintenance of the engine is done more conscientiously and as the engine is driven more efficiently.

With respect to the fixing of kilometrage premiums, the companies apply the principle of the just payment of the enginemmen who work, per full day, a prescribed number of hours, when working the different classes of train, or on shunting, etc...

This explains why the kilometrage premium for passenger trains is lower than that paid in the case of goods trains : the ratio between the premium scales is however such that the gross monthly premium of the passenger engine driver is greater than that of the goods driver, the hours on duty being the same in each case.

Some Administrations give progressively increasing premiums for each 100 or 1 000 consecutive kilometres run each month. It will be obvious that the principle of progressively increasing premiums, if applied to the individual engines, is more in the interest of the company than in those of the enginemmen working them.

The standardisation of the sets of men is an administrative matter, whereas the increase in the distance the locomotives run, especially when the engines are worked by two sets of men, is only possible if the latter have an interest in making the maximum kilometrage.

These sets of men, like moreover the whole depot staff, should have a sound knowledge of their work and also of the requirements to keep their engines in the best working order, so that any given engine can run the maximum distance.

Let us return to the fuel premiums. There are many systems for calculating them. The fuel allowances laid down for this purpose, calculated as we said above on the actual fuel consumption figures considered separately for the Summer season (April-October) and the Winter season (November-March), are still supplemented by special allowances such for example as the allowance made each time the engine is lighted up from cold, each hour the engine is standing in steam, each washing out, each time passenger trains are heated, etc.

Let us only deal with the part of the calculations which relates to the fuel consumed to move a train, which represents 80 to 90 % of the total quantity used.

The existing methods of calculating the fuel allowances, not even excepting those based upon adjusted coefficients expressly established for this purpose, do not include all the factors needed to determine the connection between the fuel allowance and the true resistance of the train. This resistance, as we know, is not only a function of the weight of the train but also depends upon the state of maintenance of the sliding or rubbing parts of the engine itself and upon the number of pairs of wheels the train hauls, upon the number of covered and open wagons forming it, upon the atmospheric conditions, etc., etc...

In addition, the existing methods are basically wrong: *they do not include any indicating element* showing the driver, all the time the train is moving, *the most scientific methods of driving* the engine so as to get the *maximum* mechanical effort with the *minimum* fuel consumption.

In view of the impossibility of improving the existing fuel premium systems, unless very complicated calculations — which could not be checked — were made, the railway companies in countries so developed as regards railway transport as America and England abandoned the payment of premiums of this kind to the enginemmen.

The question of fixing premiums is however of interest: when properly solved, it can produce considerable profits for each company or administration and at the same time the enginemmen can increase their ordinary earnings in the same proportion. A skillfully worked and well maintained locomotive can produce appreciable savings.

Investigations have been undertaken on these lines, and resulted in the design of a mechanical recording device put on the market under the name of the « *Rona* » locomotive meter.

We will now endeavour to describe this meter by dealing with the principles upon which it works and by showing how it meets in all respects the requirements mentioned above.

The « *Rona* » meter.

The *Rona* meter, patented in the principal countries of the World, is fitted on the locomotive itself. It automatically gives the reduction effected on the fuel allowance in terms of the actual load of the locomotive and at the same time enables the enginemmen to get the greatest possible kilometrage, whilst the engine benefits through being driven in the most rational manner.

It is made up of three individual meters which form the apparatus as a whole. These individual meters we call « *totalisers* », reserving the name « *meter* » to the whole instrument.

Totaliser (1) of the *Rona* meter (see fig. 1) calculates the fuel premiums: the graduated scale (5) divided up to correspond with the points of cut-off in the

cylinders and the finger (4) which moves over the scale indicate the instantaneous cut-off position used by the driver.

The totaliser (2) calculates the monthly kilometrage premiums, on an uninterrupted increasing progression.

The finger (7) which moves over the

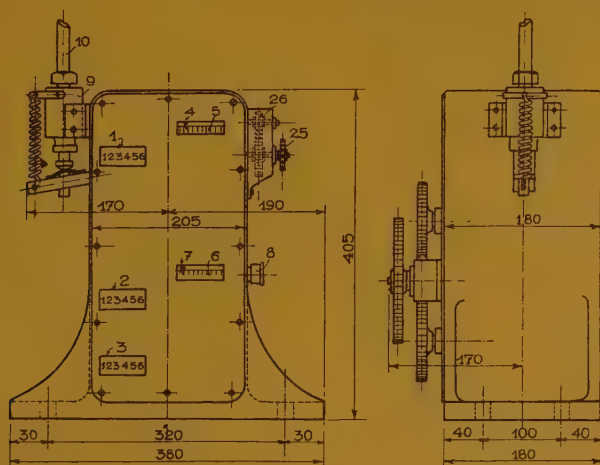


Fig. 1.

graduated scale (6) the divisions of which correspond to the distance worked, expressed in thousands of kilometres, should be returned at the beginning of each month to the initial position corresponding to the zero division of the scale (6).

The totaliser (3) is intended to register the number of kilometres worked by the locomotive.

The finger (7) automatically moves to the right, starting from zero, and covers the space between the two divisions of the scale (6) after each 1 000 kilometres run. The farther this finger is from zero, the greater is the kilometrage premium calculated by the totaliser (2).

The coincidence between the distance run calculated by the totaliser (3) and the units inscribed by the finger (7) on the graduated scale (6) prove that the latter is working properly.

The finger is restored to zero by a special key inserted in a keyhole pro-

vided for the purpose and closed by a sealed cover (8).

Totaliser of the fuel consumption.

What is the principle on which the totaliser of the fuel consumptions has been designed and on which it works?

We know that the locomotive is driven most scientifically when the smallest cut-offs are used and with the initial pressures increased accordingly.

Trials carried out in this direction have shown that when the tractive effort of a locomotive is regulated by making more frequent use of the reversing lever, the regulator being fully open, we can in the most rational way govern the tractive effort required to meet the running times laid down beforehand.

Moreover, by controlling the operation of the locomotive as described above for high-speed runs, a considerable reduction in fuel consumption can be obtained.

The increase in the tractive effort of the locomotive and the economy in fuel consumption which can be made in this way exceed, in some instances, 10 % as compared with the figures when the locomotive is handled in the way usual with most drivers, that is to say with few

that curve ABCDEFG represents, in terms of the most favourable cut-offs from a practical point of view, the variation in the consumption of Cardiff coal in kilogrammes per kilometre run (Cardiff coal is used on the Rumanian railways as the conventional unit of comparison of the calorific values of other fuels, whether solid or liquid). Let us also suppose that the second curve $A_1B_1C_1D_1E_1F_1G_1$ represents the variations of the fuel allowances calculated so as to favour driving with early cut-offs whilst the driver can obtain the maximum fuel saving by using the early cut-offs AA_1BB_1 rather than the late cut-offs $DD_1EE_1FF_1$.

When drawing the curve of the allowances ABCDEFG, it is most important that the fact that the gross fuel economy and the corresponding premium in the case of runs over the whole section ought to be higher with heavy trains, be not overlooked. This result, in spite of the apparent reduction of the kilometrage premium for the mean and late cut-offs used with speeded-up heavy trains, will be obtained because the gross distance run with the regulator open in the case of these heavy trains will always be greater than with the light trains.

Let us transpose the ordinates of the curve $A_1B_1C_1D_1E_1F_1G_1$ on the straight line OM through the centre of the axes.

We see that the curve of the variation of the fuel allowances $A_1B_1 \dots F_1G_1$ can be replaced by a straight line $A_2B_2 \dots F_2G_2$. The distances $abcdef$ between the consecutive divisions of the scale of the reversing lever will be replaced in the same system of ordinates by the spaces $a_1b_1c_1d_1e_1f_1$ and then the straight line A_2G_2 will express the variations of the fuel allowances in terms of the cut-offs. It should be observed that the ratios

$$\frac{a_1}{a}, \frac{b_1}{b}, \frac{f_1}{f} \dots$$

are generally variable since the divisions $a_1b_1c_1d_1e_1f_1$ are not proportional to the displacement of the revers-

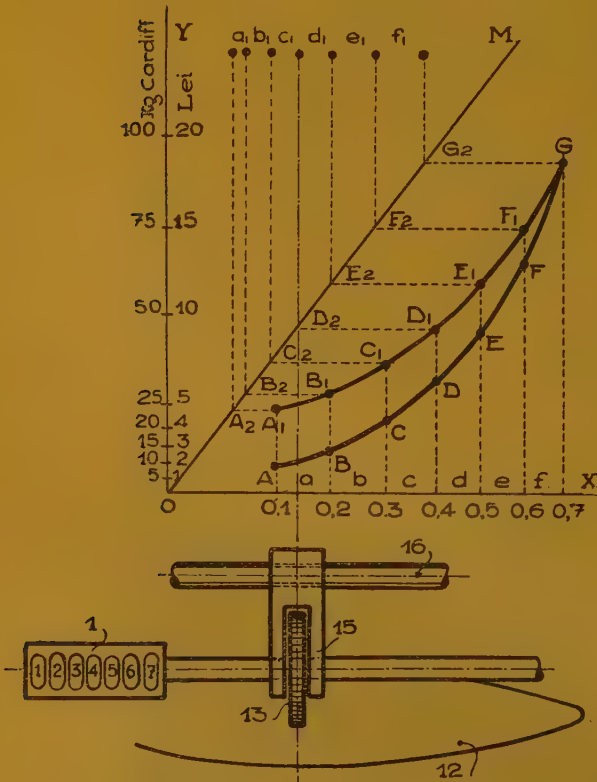


Fig. 2.

changes of cut-off but frequent adjustments of the steam chest pressures, by means of the regulator. For each type of locomotive there are cut-offs which give the best results and which correspond, on the one hand, to certain running speeds, and on the other, to certain consumptions of steam and therefore of fuel, for each kilometre covered.

Let us consider figure 2, and assume

ing screw nut between the cut-offs 0.1 ... 0.2 ... etc...

The Rona meter, as has been pointed out already, gives the quantity of fuel saved on the allowance by means of the following arrangement, shown in figures 2 and 3.

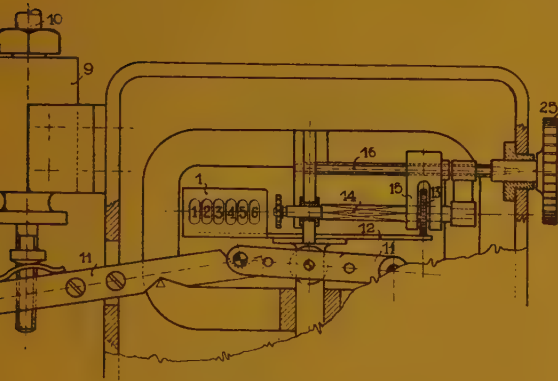


Fig. 3.

The horizontal disc (12) receives its motion from one of the locomotive wheels by means of the vertical shaft

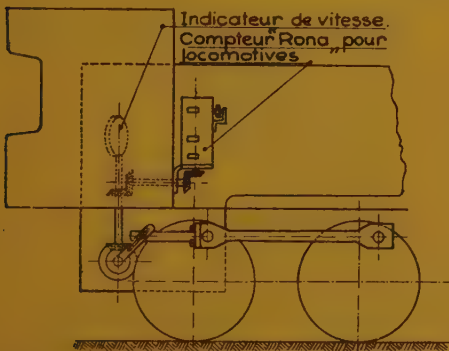


Fig. 4. — Example showing the fitting of a Rona meter. The meter is driven by the vertical shaft which controls the speed indicator. This layout is merely indicative.

Note. — Indicateur de vitesse... = Speed indicator.
— Compteur « Rona »... = Rona meter for locomotives.

which drives the speed indicator (fig. 4).

This disc, by making a definite num-

ber of revolutions per kilometre run over, drives the friction wheel (13) which can be displaced radially by means of a screw (16) from the edge towards the centre of the disc. This friction wheel, in moving along its spindle (14), communicates to this latter an angular speed which is the greater the farther it is from the centre of the disc driving it.

We see at once that after having communicated to the screw (16) the rotary movement, by means of a special drive from the reversing gear lever, whilst the disc (12) makes a definite number of revolutions for each kilometre travelled, we get the following results: for the positions corresponding to the cut-offs 0.1 - 0.2 - 0.3... this spindle only makes per kilometre travelled such a number of revolutions that it can indicate the fuel allowance expressed by the straight line $A_2...G_2$. If this allowance be shown not in kilogrammes of fuel, as usual, but in « money units » paid as premium for each kilogramme of fuel economised (on the Rumanian Railways 0.2 lei per kilogramme of Cardiff coal) the totaliser (01) (figs. 1, 2 and 3) driven by the shaft (14) will indicate the fuel allowance directly in money units and the sum which appears at each moment under the finger represents the successive additions during the run at the different cut-offs.

In order to arrive at the fuel premium, from the amount shown by the totaliser (1), the quantity of fuel loaded during the same time according to the fuel tickets expressed in the same monetary units as the premium, has to be deducted.

In other words, an amount represented by the product of the number of kilogrammes of Cardiff coal (see explanation above) loaded against the fuel tickets multiplied by 0.2, this number being equal to the premium paid for each kilogramme of fuel saved, has to be deducted.

If the resulting difference is positive,

it represents the net premium received by the driver for the fuel economised. If the difference is negative it represents the fine, imposed for excessive fuel consumption, to be deducted from the driver's pay.

So that the totaliser (1) only works when running with the regulator open, it has been fitted with a special small servo-motor consisting of a small steam cylinder (9) (figs. 1 and 3) connected by a steam pipe (10) to the locomotive main steam pipe.

Each time the regulator is opened, the steam acts on the piston in cylinder (9). This pressure is transmitted to the levers (11) and causes them to move upwards, the effect of which is to raise the disc (12) and to bring it into contact with the wheel (13). When the regulator is closed, the springs fitted restore the disc (12) to its initial position, the contact with the wheel (13) is broken and the totaliser (1) stops and ceases to count.

In order that the contact of the disc (12) with the wheel (13) can only occur for sufficiently high pressures, the springs are designed in such a way that the disc (12) ceases to be in contact with that wheel as soon as the steam pressure in the steam pipe becomes lower than that laid down by the management.

The drive from the reversing screw nut to the regulating screw (16) (fig. 3) is arranged as follows: the nut (17) of the reversing lever (figs. 5 and 6) is replaced by a support (18) carrying a pinion wheel on the centre of which a bevel gear (19) is fastened and drives a second bevel gear (20).

When the reversing screw nut moves along its screw, the pinion comes in contact either with the rack (21) or the rack (22) and moves in either one or the other direction. Its movement rotates the shaft (23) which has longitudinal slots cut in it so that the whole assembly formed by the bevel gears

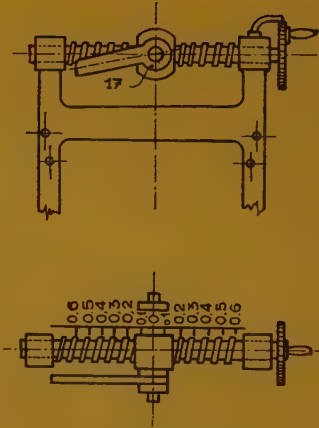


Fig. 5. — Reversing screw nut and graduated scale of cut-offs.

(19-20) can move along it. A chain which passes over the toothed wheel (24) keyed on the end of the shaft (23) outside the cab, and also over the toothed wheel (25) (figs. 1 and 6) transmits the rotary motion of the shaft (23) to the gear (26) (fig. 1) and to the screw (16) (fig. 6).

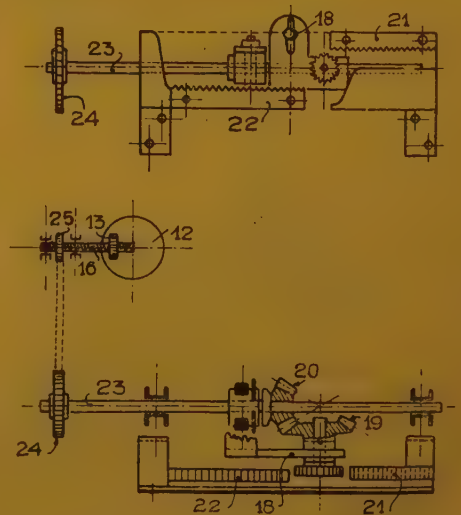


Fig. 6. — Transmission of the movement to the regulating screw of the fuel consumption totaliser.

We see therefore that any movement of the reversing screw nut towards the ends of the graduated scale for fore or back gear running causes the displacement of the fork carrying the wheel (13) (fig. 3) from the centre of the disc towards its periphery. Conversely, the motion of the reversing screw nut from the ends of the graduated scale towards the centre, are accompanied by displacements of the fork carrying the wheel (13) (fig. 3) from the periphery towards the centre of the disc (12).

In order that the distances $a_1 b_1 c_1 d_1 e_1 f_1$ (fig. 2 and indicator 5, fig. 1) correspond to the distances $abcdef$ of the graduated scale of the reversing lever, seeing

that the ratios $\frac{a_1}{a} \dots \frac{f_1}{f}$ are not equal to

one another, in the transmission of the movement from the reversing screw nut to the screw (16) (fig. 3), two cams (not shown in the drawing) have been added, their profiles being such that the angular displacements of the driving cam are proportional to the distances $abcdef$ whereas those of the driven cam are proportional to the distances $a_1 b_1 c_1 d_1 e_1 f_1$.

The great advantages of this Rona meter over all other systems of controlling the fuel consumption of the locomotives can be readily appreciated from the brief description and from the condensed account of the principle of operation of the meter just given.

The following summarises them :

1. All the complicated calculations — which cannot be checked — to arrive at the fuel allowance, are made automatically by the locomotive itself.

2. The devices used to make these calculations work reliably and cannot be tampered with by the men affected; the apparatus is sealed up and is protected by an outside cover; all parts of the drive, even those to which access is given, cannot be put into movement ex-

cept by the locomotive wheel and the reversing lever : the graduated scale of cut-offs (5) and the finger (4) (fig. 1) allow the depot staff to check at any moment, without removing the cover, the agreement between the position of the reversing lever and the friction wheel (13) (fig. 3).

3. The consumption allowances are calculated in terms of the real load on the pistons, that is to say by bringing in, in equal measure, the influence of the weight and number of pairs of wheels on the train, the track resistance, the weather conditions, the kind and state of the rolling stock hauled, for example the state of the axle journals, the number of open or covered wagons, the number of plain bearings or roller bearings, etc...

4. The calculation of the fuel allowances is based on the following admitted scientific elements : the expenditure of fuel per kilometre travelled in terms of the speed, and the fuller use of the greatest rates of evaporation per square metre of heating surface.

5. The servo-motor, properly set, forces the driver to regulate the running of the engine by using the best cut-offs.

6. The possibility of varying the setting of the meter between very wide limits enables the user to find a setting which will in all cases favour the engine driven at the best cut-offs from the fuel consumption point of view.

7. The calculation of the fuel premium is in accordance with the principles of paying the staff just remuneration.

8. If the companies do not consider it desirable to introduce fuel premiums, the Rona meter, set in such a way that the indications of the totaliser (1) (figs. 2 and 3) correspond to the curve of expenditures $A_1 \dots G_1$, can be used to ascertain the virtual overall coefficients with the object of checking the fuel consumption.

9. The Rona meter is also instructive

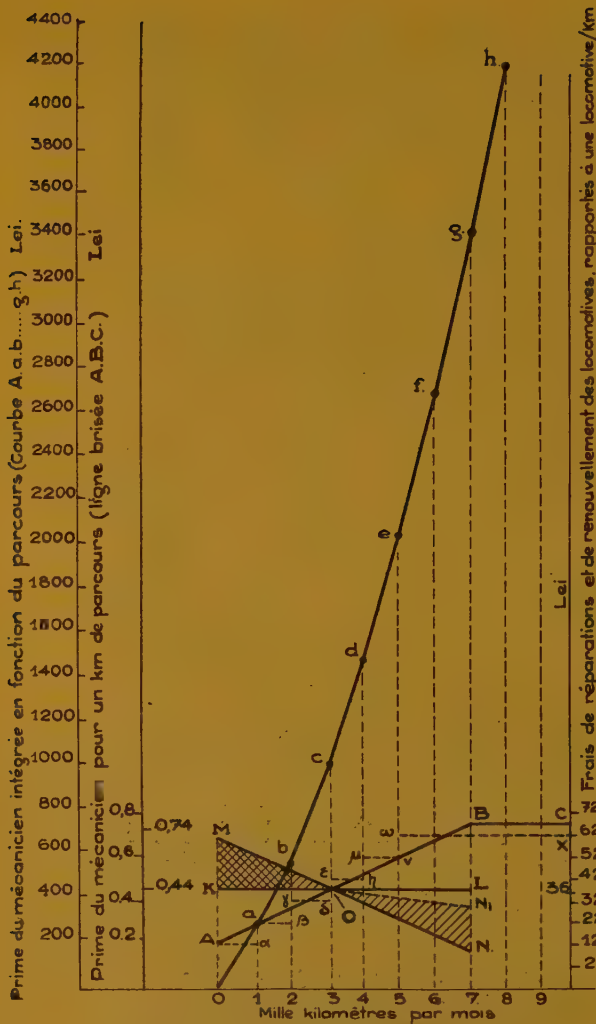


Fig. 7.

Explanation of French terms :

Prime du mécanicien intégrée... etc. = Driver's premium integrated in terms of the distance (Curve A a b... g h). Lei. — Prime du mécanicien pour un km... etc. = Driver's premium for 1 kilometre run (broken line A B C). Lei. — Frais de réparations... etc. = Costs of locomotive repairs and renewals per locomotive-kilometre. — Mille kilomètres par mois = Thousands of kilometres per month.

in itself as it habituates the locomotive men to drive their engines on sound methods, which enables them to get the

maximum output with the minimum fuel consumption.

10. The Rona meter, by letting the men see at all times the amount of premium they have gained, has a stimulating effect psychologically, which incites them to be more conscientious in driving and looking after the engines the management has placed in their hands.

Totaliser of the kilometrage premiums.

On what principle has the kilometrage totaliser been designed and how does it work ?

The kilometres run by a locomotive between two general repairs obviously can only be increased if the ordinary running repairs are done very carefully by the men working it. Every increase in kilometres run means a reduction of the cost of heavy repairs and renewals, and consequently the payment of kilometrage premiums based on the principle of an allowance progressively increasing with the distance not only meets the interests of the management but also acts as an excellent stimulant for the men working the locomotives.

The Rumanian Railways' management gives progressively increasing premiums for each 1 000 consecutive kilometres run by an engine per month. The increase in the kilometrage premium rate for the driver in terms of the distances run, shown as abscissæ in figure 7, is represented by a broken line A α , $\alpha\beta$, $\gamma\delta$... ωX .

The fireman receives two thirds of this premium.

The Rona meter automatically calculates the driver's premium on the principle of the unbroken increasing rate shown by the straight line A O B and oab...gh.

The straight line A O B represents the law of increase of the premium for each consecutive kilometre in terms of the distance travelled whilst the straight line oab...gh represents the total premium for the month's run.

In order to establish the relationship between the kilometrage premium and the costs of locomotive repairs and renewals, let us use the statistics relating to the Campina-Brasov line, on which there are gradients of 22 to 25 ‰ (1 in 45 to 1 in 40).

These statistics show that for an average monthly distance of 3 100 km. (1 925 miles) run by a locomotive, the costs of repairs and renewals per kilometre run amount to 36 lei (ordinate $\overline{03}$ of the right scale). The driver's premium calculated by the Rona for the work done under the same conditions amounts to 0.44 lei per locomotive-kilometre (ordinate $\overline{03}$ of the left scale).

The corresponding premium per locomotive-kilometre, ignoring the monthly kilometrage run, would be expressed by a straight line KL parallel to the axis of the abscissæ. In the above case, the straight line would have included at the right scale certain repair and renewal costs which do not depend upon the monthly kilometrage run by the engine, but are expressed in terms of locomotive-kilometres.

This changes completely, however, when the premium is paid on a progressively increasing rate.

Let us take a locomotive running some 3 100 kilometres monthly. A less distance will indicate inadequate maintenance and the engines of the same group will show an increase in repair costs per locomotive-kilometre. The costs of renewal will also show an increase because the reduction in kilometrage will necessitate an increase in the number of locomotives to cover the trains arranged by the management.

Contrariwise, the locomotives exceeding this figure will show a reduction in the costs of repairs and renewals.

For this reason the straight line KL of the established expenditure will be replaced by the straight line MON varying in inclination to the axis of the abscissæ. It will show the variable ex-

penditure as being great for monthly distances below 3 100 kilometres and small when the distance exceeds this figure.

We see at once that if, as an example, we effect a small percentage reduction in the costs of repairs and renewals

$$\frac{\overline{03} - \overline{N_{17}}}{\overline{30}} \times 100 = \frac{36 - 32}{36} \times 100 = 11\%,$$

(see fig. 7), which represents about 4 lei per locomotive-kilometre for a monthly kilometrage of 7 000, then and

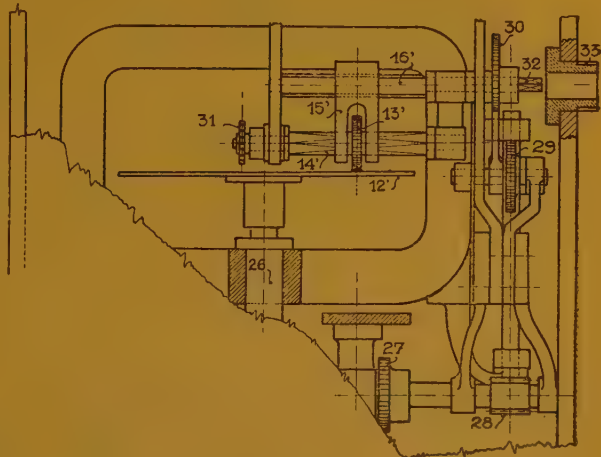


Fig. 8.

even in this case, it will be quite reasonable to increase the driver's premium for each locomotive-kilometre by :

$$\frac{\overline{E7} - \overline{03}}{\overline{03}} \times 100 = \frac{0.74 - 0.44}{0.44} \times 100 = \text{about } 68\%,$$

or 0.3 lei. In this case the cost of the premium to the administration will increase the expenditure per locomotive-kilometre by only 0.6 lei (0.3 lei for the driver, 0.2 lei for the fireman and 0.1 lei for the shops and shed staff), which re-

presents only $\frac{0.64}{4} \times 100 = 15\%$ of the

saving effected under the heading of locomotive renewal costs.

As the straight ON approaches ON₁ the costs of repairs and renewals diminish at a progressively increasing rate, and the premium corresponding to ordinate $\overline{B7}$ is thus better justified.

The kilometrage premium totaliser is arranged as follows: the angular movements of the spindle (26) (fig. 8) driven by a wheel of the locomotive are proportional to the distances run. Its movement is transmitted, in two directions, to the disc (12') and to the screw (16').

At the beginning of each month, by means of a special key, this screw is turned in the anticlockwise direction so as to bring back the fork (15') and the wheel (13') carried by it as close as possible to the axis of the disc (12'). This limiting position is obtained when the finger (7) of the graduated scale (8) (fig. 1) is in line with the division 0 thereof.

The movement transmitted to the screw (16') is so proportioned that the displacement of the fork (15') from its original position (centre of the disc (12')) to its final position (periphery of the disc) is uniform during a distance of 7 000 kilometres.

That the position of the fork (15') shows the distance worked is controlled first of all by the position of the finger (7) on the scale (8) the divisions of which indicate the distance in thousands of kilometres run since the beginning of the month, and secondly by the third totaliser (3) (fig. 1) which adds up uninterruptedly the kilometres travelled.

In the cases in which the kilometres run exceed 7 000, the fork (15') and consequently the wheel (13') remain in the same positions they are in when

they have reached this distance. The wheel (13') in moving progressively away from the centre of the disc (12') turns with a growing number of revolutions without interruption for each kilometre covered and the totaliser of the kilometrage premiums (2) adds them up following the curve *oabc...* (fig. 7).

For distances exceeding 7 000 kilometres, as the wheel (13') remains in a fixed position relatively to the centre of the disc (12') the premium added up by the totaliser (2) corresponds for each locomotive-kilometre to a fixed rate represented by the straight line BC.

This brief description of the kilometrage premiums totaliser shows that this apparatus has the following advantages over the usual methods of calculation:

1. The whole of the complicated calculations are made automatically by the locomotive itself.

2. The apparatus is reliable in working and prevents any tampering on the part of the staff concerned.

3. The calculation of the kilometrage premiums is based on methods which, whilst duly safeguarding the interests of the management, satisfy the principles of just remuneration of the staff affected.

4. The kilometrage premium totaliser enables the staff to know at any time the total premium for any distance covered. It thus psychologically stimulates the staff and incites them to collaborate more actively in maintaining the engines and looking after their mechanism.

5. When the system of kilometrage premiums is not in force, the totaliser (2) can be used to obtain more accurate virtual constants in order the better to check the costs of repairs, maintenance and renewals budgeted for at a locomotive depot or for a running section, a workshop, etc...

Tests.

In order to observe its behaviour under working conditions, a Rona meter has been fitted to a 4-6-0, class 230, German type P/8 locomotive, working different passengers trains. The first available locomotive was fitted principally with the object of finding out if it were possible to use the meter rationally on an engine for which we lacked the technical data obtained from dynamometer car trials.

During the trial period, the locomotive selected was found to have the following defects: some reduction of clearance volume at the rear end of the right hand cylinder, which increased the steam compression at early cut-offs, and the scale of cut-offs at the reversing gear was displaced backwards, making the actual cut-off earlier than those indicated.

During the trials, careful note was made of:

1. Cut-off used.
2. Steam pressure in the boiler and steam chest.
3. Quantity of water used.
4. Quantity of fuel consumed.

The cut-offs used were then marked on the speed diagrams obtained from the Hausshalter speed recorder, and also the track resistance, so that we could calculate approximately the tractive effort, which we will designate by Fi , and the work $Fi \times S \times 1000$ done by the locomotive working a distance of S kilometres with the regulator open.

From the quantity of fuel used we deducted: 4 % for the brake pump, 8 % for the oil burner and for heating the oil, and 4 % for the fuel used during stops with closed regulator, a total of 20 %.

The remainder which we will call Bm represented the fuel used by the locomotive itself.

The usual formula $\eta = \frac{Fi \times S \times 1000}{427 \times Bm \times k}$

enabled us to find the average value of the coefficient of utilisation of the locomotive, which equals 0.065.

It has been found that the average steam consumption was 36 kgr. per m^2 of heating surface, which corresponds to a consumption of 800 kgr. of Cardiff coal, the conventional unit of comparison of 7350 calories (13200 B. T. U.) used on the Rumanian Railways.

By using equation $\frac{Fi \times S \times 1000}{427 \times 800 \times 7350} =$

0.065, the diagram of the average tractive effort relatively to the speed, ignoring variations in output, has been drawn. On the same diagram the values of the tractive efforts relatively to the cut-offs

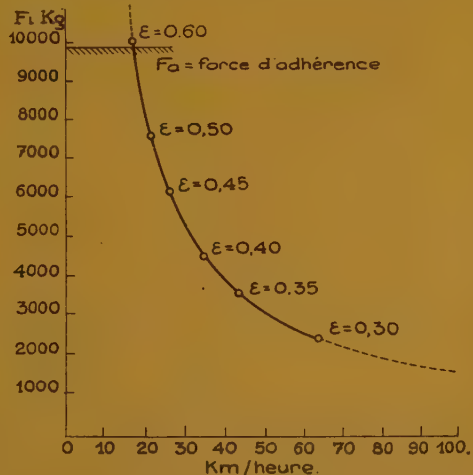


Fig. 9. — Results of tests with the Rumanian 4-6-0 locomotive, class 230 (German type P.8) working a passenger train (without feed water preheating).

Tractive effort diagram corresponding to an average steam consumption by the engine of 35 kgr. per m^2 (7.17 lb. per sq. foot) of heating surface per hour.

$\epsilon = 0.3, 0.4$, etc. = the values of the tractive effort corresponding to the cut-off of 30 %, 40 %, etc. Fuel used = crude oil and lignite in the proportion of 4.8 : 1. Evaporative value of the fuel = 7.8 kgr. Coefficient of use of the locomotive = 0.065.

Note. — Fa = Adhesive force.

Table of trials with the Rona meter.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Date and train number.	Section of line.	Gross weight of the train in metric tons.	Water consumption by the gross, in litres.	by the locomotive, in kgr. per m ² of heating surface.	Crude oil, in kgr.	Lignite, in kgr.	Fuel consumption in Cardiff, in kgr.	Rate of evaporation.	Fuel allowance, according to regulations, in kgr. of Cardiff coal.	Allowance of fuel as calculated by the Rona, in lei.	Consumption premium According to the Rumanian regulations, in lei.	Calculated by the Rona, in lei.	Kilometrage premium According to the Rumanian regulations, in lei.	Calculated by the Rona, in lei.
7-4-1933	Bucarest	270	23 400	36	2 488	520	3 417	7.83	4 285	815	(4285-3117)×0.2 = 233.6	191.6	43.6	59.2
501	Marasesti													
9-1-1933	248 km.	300	31 000	37	3 407	680	4 323	7.60	4 265	1 069	(4285-4323)×0.2 = - 7.6	204.4	43.6	67.8
501	(435.5 miles).													

The run on January 7, 1933, was carried out under favourable atmospheric conditions: little snow, — 2° C. (28° F.) frost, whilst during the run on January 9, there was a high wind, a snow storm of growing intensity, and — 10° C. (14° F.) frost.

(see fig. 9) are shown. Knowing that the value of the tractive effort, represented by the curve drawn on figure 9, corresponds to an hourly consumption of 800 kgr. of Cardiff coal, the kilometric consumption of Cardiff coal in terms of the cut-offs has been calculated (see fig. 10, diagram *abc...*).

The meter is set to correspond to the broken line *def...*, the fuel allowance is drawn on the diagram of figure 10 in kilogrammes of Cardiff coal and in lei, counting 0.20 lei per kilogramme.

This setting is obtained as follows: the two fore and back gear racks are so held on the reversing lever bracket that they begin to mesh, with the pinion transmitting the movement to the screw displacing the friction wheel of the fuel premium totaliser, for cut-offs equal to 25 % and cease for cut-offs of 54 %.

For cut-offs below 25 % and above 54 %, the friction wheel remains in the above positions; consequently the fuel consumption rate having the minimum value which corresponds to the point *e*

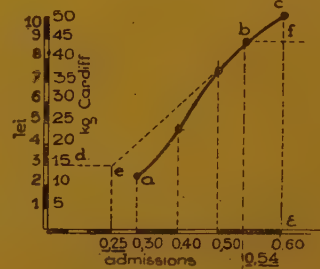


Fig. 10. — Diagram showing the setting of the totaliser of the fuel allowance. — (Rona meter on the Rumanian Railways' 4-6-0 locomotive, class 230 — German type P.8.); *d, e, b, f.* — the kilometrage allowance in terms of the cut-offs; *a, b, c.* — the average real consumption per kilometre in terms of ϵ .

(fig. 10) favours the engine driven at early cut-offs, whilst driving with late cut-offs diminishes the difference be-

tween the allowance and the actual consumption.

It must be noted, however, that in the case of heavy trains or in the case of running at high speeds, the allowance calculated by the meter and therefore the driver's premium also increase because it is necessary to use medium cut-offs more often and because the distances run with the regulator open also increase.

It must not be forgotten that the difference between the allowance and the actual consumption, too great when early cut-offs are used, gives a reserve covering the fuel used for accessory purposes, which in Winter, as we have shown above, represents some 20 % of the total quantity of fuel used.

The accuracy of the principles explained above has been confirmed by practical trials.

The first part of these trials was made under favourable weather conditions, whereas during the second part the weather was bad, a snow storm raging, and the train was heavier. As a result the fuel used in the second trial was 37 % higher than that used during the first.

According to the Rumanian State Railways' regulations, the allowance of fuel per kilometre for the class P/8 locomotives working a passenger is 16 kgr. between Bucarest and Ploesti, 17 kgr. between Ploesti and Buzău and 18 kgr. between Buzău and Marasesti, and in Winter, when there is more than — 10° (14° F.) of frost, these allowances are increased by 10 % for the engine and 15 % for heating the train with steam from the boiler.

The premium calculated according to the above regulations was 233.6 lei in the first case, whilst in the second, owing to the increased consumption, the driver would have had to pay a fine of 7.6 lei.

The Rona meter showed a premium in the first case of 191.6 lei, and 204.4 in the second.

As for the kilometrage premium, the Rona meter calculated it at 59.7 lei in the first case, and 67.8 in the second.

Had this premium been calculated according to the regulations, i. e. according to the straight line $A\alpha, \alpha\beta, \dots \omega X$ (fig. 7), it would have been the same in both cases.

This shows that the Rona meter remunerates the driver much more fairly.

It may be questioned, however, if the managements can pay premiums higher than those laid down in the existing regulations. This question can be answered in the affirmative, as the Rona meter makes it possible to effect fuel economies and to reduce the repair costs and these savings or at least a part thereof can be used expressly to increase the total of the premiums. Obviously this increase in the total premiums will not occur straight away, and so long as the amounts so economised do not allow this increase to be made, the Rona meters, for a certain period, should be used to determine the virtual constants in order to be able to pay premiums proportional to these constants without, however, exceeding the money set aside in the budget for this purpose.

Furthermore, to simplify these calculations, the Rona meters can be set so that the constants shown conform as closely as possible with the sums the administration has at its disposal for paying these premiums.

Conclusions.

The political instability and the present financial difficulties have had deplorable consequences on the discipline and on the professional conscience of the men. The supervision and the maintenance of the rolling stock has suffered in consequence. This explains why on many lines the fuel used per 100 gross tonne-kilometres is almost the same as before the War, in spite of all the impro-

vements made to the locomotives, such as the higher superheat, or feed water heating, which have shown savings of 10 to 20 %.

There is no doubt but that if the staff is given a more clear interest in the results of its work, a real improvement in the maintenance of the engines will be obtained, which will lead to fuel economy and to the distance run being increased without the normal maintenance and repair costs being increased.

The example we quote below shows that only a very small saving is needed to be able to improve the material situation of the staff concerned and to pay off very quickly the first cost of the Rona meter.

On diagram MN (fig. 7) we have shown that the cost of repairs and renewals of the locomotives running over a difficult mountain section (Campina-Brasov) with heavy gradients, according to the statistics is 36 lei per locomotive-kilometre, for a monthly distance run of 3 100 kilometres. The cost of the fuel per locomotive-kilometre on the same section also amounts to 36 lei.

The sum of the whole of the expenses (locomotive running and shop) being 90 lei per locomotive-kilometre, the cost of fuel, repairs and renewals represents therefore quite 80 % of the total of these expenditures.

Even, if this proportion is lower on certain sections, it is none the less true that the expenditure under these two headings is the most important in the locomotive running department. The premium system ought therefore to direct attention to getting the best results as to the use of fuel and to improving the state of repair of the locomotives, under condition of their being better utilised.

Let us suppose that, for a locomotive with an annual kilometrage of 36 000, the saving effected is 3 %; this will give a saving of :

$$(30 + 36) \times 36\,000 \times 0.03 = 77\,760 \text{ lei.}$$

The parts of the staff who share in the premiums are as follows :

a) Administration, depots, clerical staff, boilerwashers, and cleaners	2.27 lei
b) Workmen in the depot shop	4.24 lei
c) Driver and fireman	6.68 lei

Total 13.19 lei

per locomotive-kilometre, or per annum :

$$13.19 \times 36\,000 = 474\,840 \text{ lei.}$$

Now if we assume that 50 % of the saving effected is set aside to increase the amount of the staff premium (it should be noted that the men in the main workshops are not included in the above, because they receive production premiums which are provided from other sources) and 30 % for the reduction of the expenditure in the locomotive running department and in the workshops, there will still be a margin of 20 % which represents $77\,760 \times 0.20 = 15\,552$ lei, that is to say a sum large enough to pay off the meter and its installation in less than 4 years.

The earnings of the men will be increased by

$$\frac{77\,760 \times 0.5 \times 100}{474\,840} = 8 \% \text{ approximately.}$$

tely, whilst the locomotive running and workshop expenditure per locomotive-kilometre will fall by

$$\frac{77\,760 \times 0.3 \times 100}{90 \times 33\,000} = 1 \% \text{ approximately.}$$

tely.

Actually the real percentage will be much higher than this figure as the costs of renewal, maintenance and repairs will be still further reduced.

Moreover, the costs of fitting the meters can be paid off quickly and, as soon as they have learnt to use the meter, the

share of the staff in the savings can be reduced progressively.

The above shows that the Rona meters can be of use, not only in connection with the mechanisation of the calculations of the premiums granted to the staff, but also in the rationalisation of the principles upon which the importance of these premiums is based, because they make it possible to control these, the most important items of expenditure in the locomotive running and workshop departments.

From this point of view, the Rona meters can be compared with the calculating machines now employed in all modern accountancy. These machines have made it possible to mechanise the accounting methods and have improved them by standardising all the most rational systems.

Tests made to decide how far the Rona meters are instructive, mentioned at the beginning of this article, are still being continued and the results will be reported at a later date.

NEW BOOKS AND PUBLICATIONS.

[656. 1 (494) & 656. 2 (.494)]

RAILWAY AND ROAD TRANSPORT. — Memorandum by the Board of Directors and the General Management of the Swiss Federal Railways on the **Regulation of the relations between railways and road motor transport (26th June 1933)**. — A pamphlet (9 7/8 in. × 6 1/2 in.) of 100 pages with 3 maps.

The Board of Directors and the General Management of the Swiss Federal Railways have sent to the Federal Post Office and Railways Department a common memorandum on the *regulation of the relations between railway and road motor transport*. This memorandum, 100 pages in length, was approved by the Board of Directors on the 26th June, 1933. It gives the history of the discussions which took place with representatives of road transport, reports on the probable effects of the proposed legislative measures these discussions have led to, and includes, in addition, a large amount of valuable information on the question of competition between rail and road. It completes the report of the 7th February, 1933, on the restoration of the financial situation of the Swiss Federal Railways. This delay of nearly five months is explained by the fact that it was not possible to elaborate this memorandum before the conclusion of the negotiations with the representa-

tives of road transport, undertaken with a view to finding an agreed draft for a Federal law to regulate the transport of goods and cattle on public highways by means of motor vehicles, as well as an agreement for sharing the traffic and co-ordinating railway and lorry transport.

The introduction brings out the fact that the regulation of the relations between railway and road motor is an essential condition if the financial position of the Federal Railways is to be put on a healthy basis which can last, and consequently is the only way the legislator can be sure that the Confederation will not have to burden itself with an even heavier share of the Swiss Federal Railways' losses. The memorandum, in its six main chapters, then gives in great detail the system proposed for granting concessions for the transport of goods by road, carried out as a trade within an area of 10 to 30 km. (6.2 to 18.6 miles), and the generalisa-

tion, resulting from this concession system, of *Asto* services over the whole country. The public has already been kept well informed about the provisions of the projected law and the agreement concluded between the parties concerned. The co-relation set up between the concession system and the *Asto* will make it possible to make a fundamental reform in the railway services by giving over to the motor the greater part of short-distance goods traffic (limited by this law to 30 km. (18.6 miles)). This innovation is equivalent to *linking up directly with the railway*, at least in the case of the goods traffic, many localities at some distance from the railway. This extension to the national transport system is not detrimental to private enterprise, as the working of all the motor transport services is transferred to a new *Sesa*, which has been made into a co-operative society. In order to carry out its duties, this latter will have recourse to private transport undertakings already in existence, with which it will make contracts. It is interesting to point out, in this connection, that the projected law in question has already received much attention from a large part of the technical and daily press of other countries, which has particularly stressed the development of the public transport system which this concession system provides.

The promulgation of the projected law gives rise to a constitutional pro-

blem, which the memorandum should elucidate. Based largely upon the opinion given by Professor Blumenstein, it comes to the conclusion that, as private traffic is not affected by the projected regulations, it is not necessary to amend the Federal Constitution. In their final proposal, the Board of Directors and the General Management ask the Federal Post Office and Railways Department to elaborate a proposal for a concession law, after giving due consideration to the projected scheme got out in agreement with the railway administrations and the road representatives concerned.

To the memorandum are appended :

1. The agreement of the 27th May 1933 between the railway administrations and the road motor industry representatives concerned, to divide up the traffic and co-ordinate the railway and lorry services;
2. a projected law regulating the transport on the highways of goods and cattle in motor vehicles;
3. a graph showing the relations set up under the system for dividing the traffic and co-ordinating the railways and road motor services according to the agreement of the 27th May 1933;
4. the results of an enquiry into the extent of goods transport by motor lorries;
5. a report on the official regulations governing competition abroad.

August, 1933.